PRINTING EQUIPMENT ENGINEER

- A Technical Publication for Mechanical Executives
- Responsible for Printing Production and the Selection and Care of Printing Equipment and Supplies

AUGUST 1932

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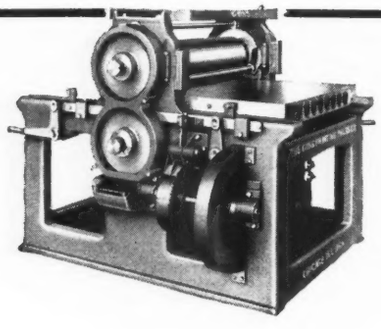

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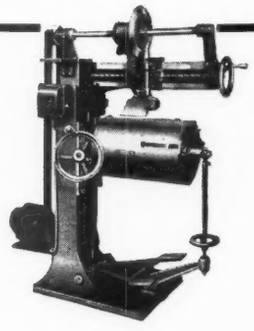

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In This Issue:

Metallic Molds for Electrotyping - - - - - 7
J. Homer Winkler

Photo Lithography and Offset Lithography - - 8
Frank O. Sullivan

Handling Newsprint—Its Economy - - - - 9
John L. Blake

Foremen, Know Your Costs! - - - - - - - 11
R. J. Barrett

Third Progress Report on Study of News Ink and Newsprint - - - - - - - - 14
B. L. Wehmhoff

Letters to the Editor - - - - - - - - - 16

Progress in Offset Printing - - - - - - - 18
Otto R. Trampusch

July Printing Patents - - - - - - - - - 26

Latest Printing Equipment Mechanisms - - 29

Catalogs, Books and Bulletins - - - - - 30

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After you have read this copy, pass this magazine along to the other men in your organization. They will undoubtedly get helpful ideas from its pages.

Check in left column after reading. Note articles of interest.

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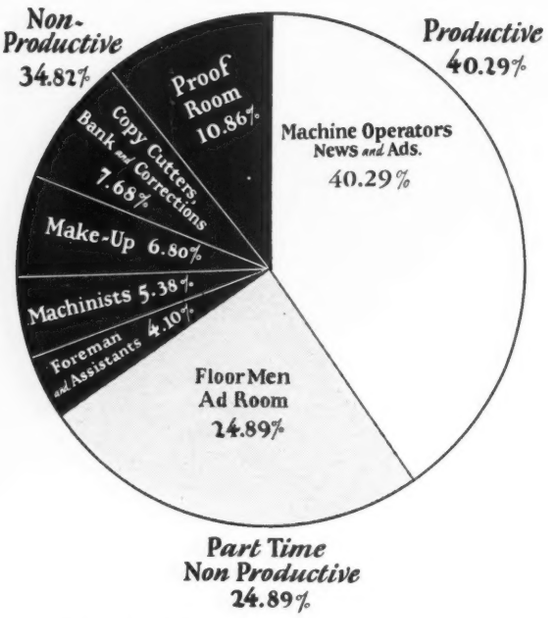
If there were NO *errors in Machine Composition!*

At least 27.82% of the newspaper composing room force could be dispensed with

THE accompanying chart shows the division of a typical newspaper composing room force—based on a nation-wide survey.

It proves that were there no errors in composition the following members of the force would not be needed:



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Proofreaders	10.86%
*Machine operators	4.83%
**Floor Men—Ad Room	8.29%
½ Bank and Correction Bank Men	3.84%
	27.82%

*Operators non-productive 12% of time because of errors in news and ads. No allowance for store changes in advertising.

**Floor Men—Ad Room non-productive 1/3 of time correcting office and store proofs.

With the use of Black & White Matrices, we guarantee to reduce all errors at least 25%. The cost of this service is less than 10% of what you pay proofreaders to detect errors in proofs.

This 25% reduction means more productive time for machine operators and the ad alley force; and less non-productive hours for proofreaders and on the correction bank.

The Black & White Contrast Matrix costs you absolutely nothing until we have proven our guarantee right in your own plant. Write

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"Contrast Provides VISIBILITY"

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PRINTING
EQUIPMENT
ENGINEER
August, 1932

Metallic Molds for Electrotyping

By J. Homer Winkler*

Mr. Winkler Discusses the Progress Which Has Been Made in Developing Metallic Molds for Electrotyping—Elimination of Wax Molds Would Simplify Molding Procedure.

The formation of a metallic film against a mold by means of electrodeposition is termed electroforming. This film or shell may be used as is, or filled with some solid such as wax, plaster, metal, etc., or it may be further altered or combined by mechanical means before use. When a reproduction of a printing surface is made by electroforming it is termed an electrotype. Electrotypes may have a surface of copper or nickel and are termed as such. In commercial practice the term "electrotype" has come to mean a copper electrotype, and "nickeltype" or "steeltype" refers to a nickel electrotype. An electrotype may be nickel-plated and both electrotypes and nickeltypes may be chromium-plated.

Electrotypes are usually prepared by depositing a copper shell against a wax mold (which has been made electrically conductive by the application of a graphite film) of the printing surface to be duplicated and filling the back of the resultant shell with electrotype metal. The solid plate is then machined and trimmed to the size and thickness wanted, the printing surface is brought up to the same plane and possible defects are remedied. The plate is then curved, bevelled, or mounted as desired.

A brief description of the methods employed in applying the graphite film will make clear the savings that could be effected if the electrotypes were deposited on an electrically conductive molding medium. A preliminary coating of graphite is applied to the wax surface during the molding operation to prevent the wax from sticking to the subject being molded. After the mold has been "cut down," "builded" and a metallic connection piece imbedded at the suspension end for electrical contact, the wax surface receives a more complete coating of graphite. This is done either by "dry polishing" or "wet leading." Dry polishing consists of dusting the wax surface with powdered graphite by means of a soft, long-bristled brush. The movement of the brush is obtained by manual or mechanical means. The "wet leading" is accomplished by subjecting the wax surface to a pressure flow of a suspension of powdered graphite in water. A force pump suitably constructed in a machine for that purpose furnishes the required pressure. The wax-molded cases pass along under the nozzles on an endless belt or may be held stationary while the nozzle is mechanically moved. These two methods of graphiting supplement each other and are used in sequence by most electrotyping foundries. In one type of machine, the two operations are combined.

It is apparent therefore that it would considerably simplify the plating steps in the manufacture of electrotypes if conductive molds only were used, for example, a metal mold. The molding procedure of electrotyping would also be considerably simplified if wax molding compositions were not used. It would eliminate wax pouring, case shaving, warming cabinets, molding graphite, "building," etc. Apparently there are four possible ways by which metal molding can be accomplished. Only two of them have proven commercially practicable thus far.

The first and most familiar method of molding in metal is the present practice of lead molding. This method depends upon a sheet of sufficiently soft metal of a suitable thickness to receive an impression of the subject and retain it under the pressure required to make the impression and without deforming the subject while being molded. Lead, when chemically pure, and rolled into sheets under proper conditions is the softest known metal. It is also conductive of itself and may be plated upon. This property eliminates such operations as would be required to apply an electrically conductive film to a non-conducting surface. Lead is readily acted upon by solutions of chromates and chromic acid forming a film of lead chromate. This film is of sufficient thickness to permit the separation of a subsequently deposited shell but does not interfere with the conductivity of the lead surface or with the detail present in a molded sheet. Furthermore lead has a low elasticity and remains permanently deformed when subjected to high pressure. Lead can therefore be used without causing a pattern or original to be mashed or distorted while it is being molded. Because of the above properties of lead that pecularily adapt it to the purpose, it is universally used as a molding medium where possible and when it is desired. There are many faults in

*The Ace Electrotype Company, Cleveland, Ohio.

the preparation of originals, and patterns that cause difficulty and in some cases make them impossible to lead mold, but this article is concerned only with the molding medium. Some lead molds are made directly from type forms. This is at best a risky and uncertain procedure with the character of type metal now furnished and the depth required for commercial and publication work. Unless, therefore, a metal can be developed that will be softer than lead when rolled into sheets, or a type metal is developed that will not fail under the pressures required, present lead molding practice does not admit of further application.

The second method of preparing a metal mold does not in a strict sense belong under this head. However, it should be considered. This process depends on the deposition from plating solutions of a heavy shell of metal directly against the face of the orignal or pattern to be reproduced. A suitable film is first applied to the subject in order to effect separation of the final shell, similar to the formation of a film of lead chromate on the surfaces of lead molds. As released from the original this shell is a perfect mold. (It is possible to reproduce fine lines of the order of one-one hundred thousandth of an inch wide by electrolytic methods). By depositing a shell on its surface, an electrotype is obtained. This process was carried out successfully for a time in the plant of the Theodore L. DeVinne Company, New York, for the reproduction of halftones in the printing of *Century Magazine*, about 1900. It is at present finding a successful commercial application in the preparation of matrices or molds used in the manufacturer of phonograph records and in the preparation of plates for printing the U. S. paper currency at the Bureau of Engraving and Printing, Washington, D. C. It is occasionally applied on particular jobs in most foundries. This process and lead molding are apparently the only two commercially practicable methods for preparing metal molds.

A third method that has been tried in several instances depends upon the use of a fusible alloy (usually containing bismuth) and having a very low melting point (approximately 80° C). This metal is held in a suitable frame or form in the liquid state and just before it solidifies an impression is made. This practice may and has also been reversed. The liquid metal was poured over a form or original and removed after solidification. The first experiments along this line were tried by Joseph Carez in 1785 at Toul, France. The most serious difficulty he encountered was releasing the type form from the chilled metal. The same difficulty prevents its commercial success today.

The fourth possibility is that of extruding or embossing a thin sheet of aluminum, copper, lead, or other suitable metal by molding. The sheet thus formed may be used for a mold and a shell deposited thereon. The form or original to be molded is locked in a chase, put in a suitable press and an impression is pulled on a sheet of copper backed with an impression base. In order to obtain depth it is necessary to extrude the metal, and in order to hold a comparatively level plane in the shell it is necessary to supply some sort of backing to the metal sheet during the molding. The metal being used must also be capable of extrusion. The sheet of metal thus being deformed is forced into this backing. Some experiments were made with a sheet of lead approximately 0.001 in. thick which was laid over a wax case, and then a mold was made by means of a wax-molding press. This will illustrate the principle in point. In order to get away from the total overall pressures involved by molding in a wax press, the molding was also attempted by means of a stereotype matrix roller. The pressure was thus confined to a narrow strip across the subject during the molding process. Apparently this method has received considerable attention and there is recorded several independent investigations of its possibilities. Among them two may be mentioned. In 1904, Yeoll employed thin sheets of copper and brass and used a single and later a double stereotype roller for molding. About the same time some experiments were conducted on a large scale in Germany with a molding material consisting of a layer of lead about 0.007 in. thick which was securely fastened to a layer of wax about ¼ in. thick. In order to prevent the wax from cracking and separating a fibrous binder similar to wool was incorporated in it. The combination was supposed to give depth and stability. Apparently the results were unsuccessful as nothing further has been heard of the material.

Experimentation is still being conducted on the problem of developing a suitable molding medium having a metallic surface. It is to be hoped that successful results will be obtained.

Photo Lithography and Offset Lithography

The Direct or Glue Process

By Frank O. Sullivan

In the previous chapter we dwelt on the etching, counter-etching of the plate, and the sensitive albumin coating solution. In this issue, issue, it is our purpose to dwell on the direct or glue solution, an English invention, known as the VanDyke or "reverse method," because of the fact that from a positive print, a negative is obtained on the metal plate. This is then *reversed* by filling in the washed-out parts on the metal plate and removing the hardened colloid glue.

There have been many modifications of this process in recent years, and are known as the "deep-etch process." Grass, Knudsen, Richards and Beka, have all taken out patents on their improvements on this process, but they have not been wholly fool-proof. Ellis Bassist, long an exponent of the direct or glue process, has made some excellent reproductions by this method. The writer has a number of his examples on hand and his black and white reproductions look like photography on paper, and his color work is equally well done.

There are a number of different formulas for the direct or glue process, each one of which is probably well suited for the special purpose or class of work for which it is used. Some of the early users tried to use gum arabic, but this is not recommended, for, if the least trace of gum remains, it will have a tendency to cause the work to leave the plate. It is best to use a photoengravers' glue, with the proper viscosity to suit the speed of the whirler. The following formula is giving complete satisfaction:

Photo-engravers' glue, 6 ounces.
Water, 32 ounces.
Bichromate of ammonia, ½ ounce.

The glue should be clarified fish glue, free from all acid or other impurities. When mixed, the solution should not change the color of blue litmus paper to red. A simple test for the homogeneity of the solution can be made by coating

(Continued on page 22)

Handling Newsprint—Its Economy

By JOHN L. BLAKE*

THE men who handle your paper should notice the general condition of every car. If any rolls were damaged in transit, have them report to the responsible party in your organization what caused the damage with suggestions for correcting the trouble. Otherwise, hold them strictly accountable for all damage, unless they can prove the rolls were received in a damaged condition.

When cars are received with rolls that have shifted; that have not had all obstacles and debris removed from their floors and walls; with roofs, doors or sides that have leaked in transit; even though there has been no actual damage to the paper, report these conditions because they will eventually cause damage, and lots of it.

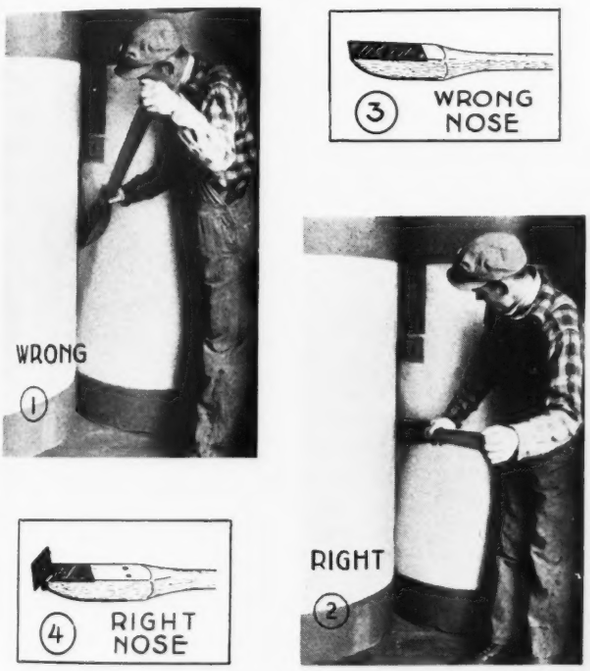


Fig. 1—1. Shows improper way to use prying paddles. The nose of the paddle will gouge the side of the roll.

2. Shows proper method of using prying paddle—horizontal (not tilted.)

3. Unless the paddle has an easy moving shoe on the nose, it will cut rolls regardless of how it is used.

4. Nose of paddle properly equipped with easy-moving shoe.

PRYING ROLLS LOOSE, IN CAR, VESSEL OR STORAGE

Here is where a lot of rolls are cut on the side. The handlers must use the right kind of paddle and use the paddle properly to avoid these cuts.

Never move a roll from a vertical to a horizontal position, or vice versa, unless a truck is used which is equipped with a metal shoe, that will go under the roll without tilting it, so as to protect the edge on which the weight of the roll will fall. Using a truck not equipped with a metal shoe may split the edges of at least 20 per cent of the rolls.

*Assistant Manager, Scripps-Howard Supply Company, Cincinnati, Ohio.

EDITOR'S NOTE:

Publishers, through their mechanical executives, devote much time to the study of newsprint waste reduction by analyzing the methods of handling newsprint from the time it is taken out of the car or boat until it has been delivered in the form of completely printed papers. The American Newspaper Publishers' Association, through the Mechanical Department, is making a constant study of the problem under the supervision of W. E. Wines, manager of the Department.

In this exposition of the proper handling of newsprint, which is largely pictorial, Mr. Blake goes into all the details with meticulous care. The author states that if there is a secret in the safe handling of newsprint it consists of the exercise of care upon the part of the paper handlers together with proper equipment. The education of those responsible for handling newsprint is an important matter since Mr. Blake has made a compilation of ideas and methods utilized by the press crews of the twenty-five Scripps-Howard Newspapers for keeping newsprint waste at a minimum.

While the majority of mechanical executives are no doubt conversant with many of the methods described, we earnestly recommend that this treatise on the handling of newsprint be given serious consideration in all its details.

This is the first of a series of three installments to be published in the ENGINEER.

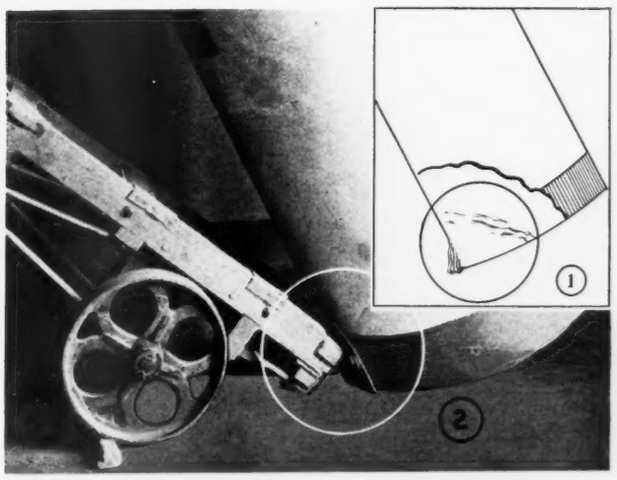


Fig. 2—At 1 is shown what happens when the weight is put on the edge of a roll that is not supported with a metal shoe. A pressure of 10 lbs. will break a sheet of newsprint.

2. The metal shoe is fully protecting the edge of a roll.

Fig. 3

Illustrated here are two types of toggles that should be used in pulling rolls over onto lipped trucks. They save man power. It takes three men to pull a roll over without them—and only two men with them. The toggle with rope is homemade. The plug is of hardwood 2½ in. by 20 in. Any sub-

stantial kind of rope can be used for the hawsers. The metal toggles can be made by any blacksmith for about $2.

The toggle in Fig. 3, is for use with rolls that do not have wooden plugs in the cores. The toggle is jammed into the core. The toggle in Fig. 4, is for rolls that have wooden plugs in cores, especially non-returnable cores.

Tire casings, or bags of paper may protect rolls for a drop of *not* more than 5 in. Incline horses are inexpensive and will entirely eliminate damage usually caused by dropping rolls too great a distance. The ones shown in Fig. 5, are used

Fig. 4

for removing rolls from a high wheel truck. They should also be used for rolling rolls from dollies.

In moving rolls from one floor to another, either leave the rolls on the truck, or else raise the elevator to the height of the truck bed and roll (don't drop) the roll onto the elevator. When the elevator reaches the next floor, adjust the floor of

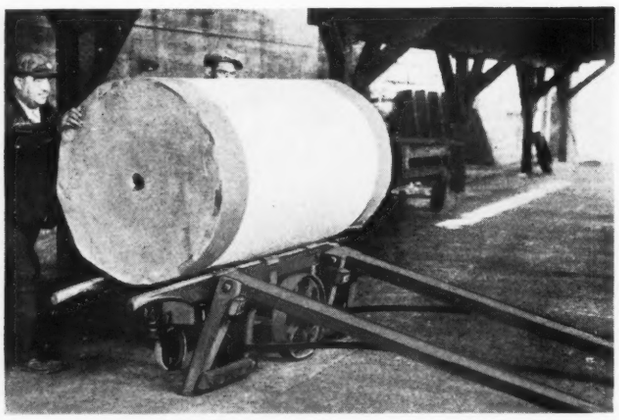


Fig. 5

the elevator to the height of the truck bed and push (don't drop) the roll onto the truck.

TWO INCIDENTAL METHODS

It is often possible to use stubs removed for speed runs, on slow runs or small editions, when speed is not essential.

Use the largest diameter rolls that the press will take. This will decrease wrapper and core waste, save freight on incoming paper and outgoing cores, and you will have fewer rolls to handle through the warehouse and on the press.

A perpetual inventory of the paper in your own building can be kept by the man who receives the paper as delivered. The press crews report on the paper used each day. The method will be described in a later installment.

RIGHT AND WRONG WAY TO HANDLE ROLLS

There is a right way and a wrong way to roll and turn rolls. In the first place though, only roll rolls for short distances. Otherwise use dollies or trucks. This is especially important where floors, platforms or sidewalks are rough, in which case they should either be put on trucks or rolled on smooth runways to avoid sidecuts.

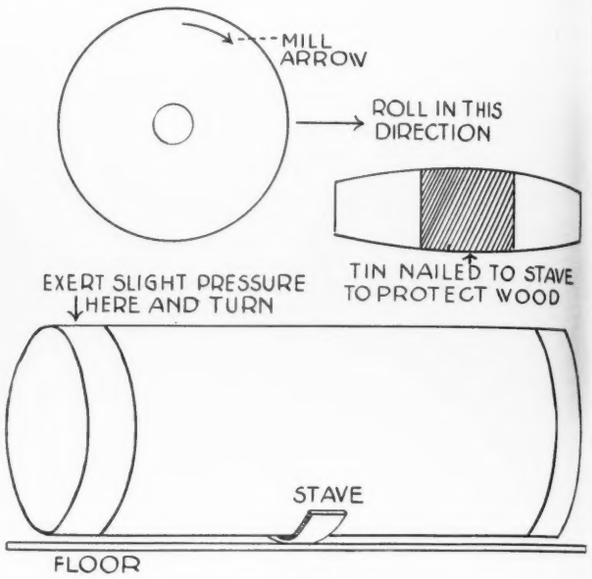


Fig. 6

Always roll rolls in the direction in which they are wound. Most mills have an arrow on the end of rolls showing the direction in which they should be rolled.

Keg staves will ease the turning of rolls (one man can do it) and save damage. Keg staves are also excellent for temporarily blocking one or more rolls. To turn a roll, place stave a trifle off-center towards end to be turned.

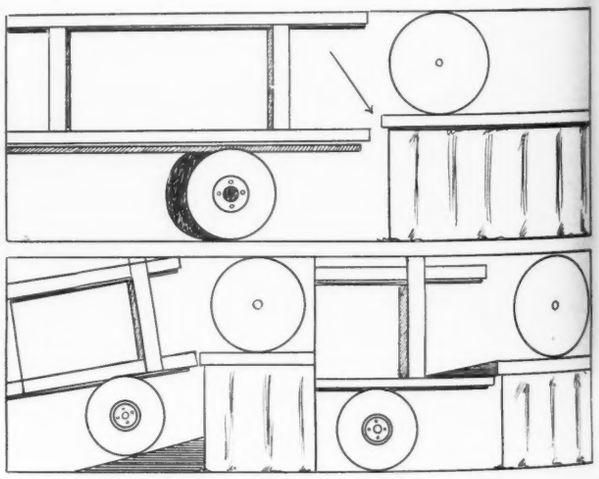


Fig. 7—Do not attempt to overcome a bad unloading condition (as shown in the upper part of this figure) with tire casings or bags of paper. Instead, build an incline upon which to back the truck, or upon which to let the rolls down, as shown in the lower part of this figure.

Examine the surfaces over which the rolls are rolled. The floors of platforms, warehouses and pressrooms are often rough. Nails may protrude from them; floor boards are sometimes uneven; concrete floors are apt to be pitted with either holes or rough patches of unfinished concrete. These things will damage newsprint. If it is too expensive to fix the floors, then insist on rolls being trucked.

Rolling rolls over open sidewalks is undesirable; particularly in wet weather. Sidewalks are often uneven and rough.

Runways for use over sidewalks are good investments. If the opening of the chute is level with the sidewalk, two pieces of 2x8 or 3x8 hardwood timbers will do nicely. Have all four upper edges of each timber beveled. Also have the top surfaces planed. These timbers are, of course, to be removed from the sidewalk and stored in the chute when they are not being used.

If the chute extends above the sidewalk, then build a "bridge" runway, the height of which will depend on the height of the truck bed and the distance the chute extends above the sidewalk. Remember, though, that such arrangements must be constructed so that they can be removed from the sidewalk when they are not in use.

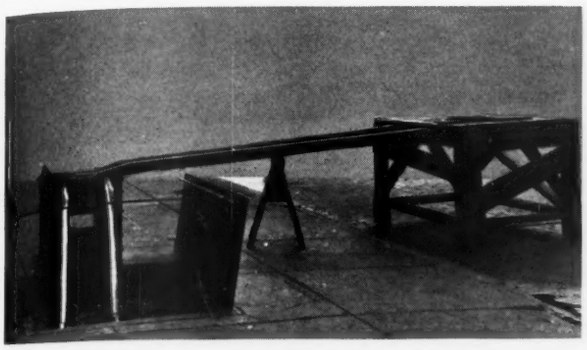


Fig. 8—Example of a "bridge" runway. It saves a lot of damage. The dangerous practice of dropping rolls from the truck, and then rolling them across the sidewalk to the chute is eliminated.

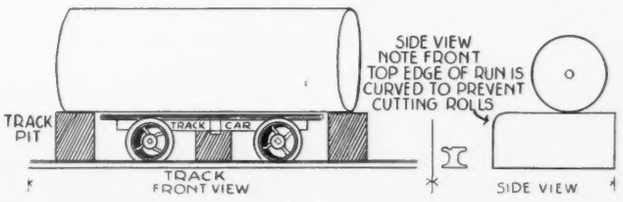


Fig. 9

An illustration of concrete runways built by the press crew of a Scripps-Howard publication in the paper storage room. The runways are level with the top of the track car. They eliminate drops, thereby preventing damage. They facilitate handling—one man can easily handle the job. Storage rooms equipped with concrete runways are easier to clean than those where boards are used. Nothing to move, just sweep the aisles. Concrete runways do not warp or clatter. They also offer protection against water from bursted pipes, or water that might leak in during storms.

In plants where dollies are used, instead of track cars, this idea can also be adopted instead of dropping or lifting rolls the height of the dolly.

To be Continued

Foremen, Know Your Costs!

By R. J. BARRETT*

Mr. Barrett Discusses a Problem Which Should Be Nearest the Heart of Every Composing Room Executive and Suggests a Remedy for Those Executives Who Are "Groping in the Dark."

IT IS necessary that the foreman of a composing room have facts regarding the operations of his department, instead of opinions based upon experience. Any statements made regarding operation cannot affect all papers on an equal basis. But I am sure they will affect the majority, and that is about all anyone can hope for in discussing any problem.

In a commercial printing office the management has to be familiar with every composing room operation. Lack of knowledge where composition is sold on a competitive basis would mean a failure of the business in a short time. A newspaper composing room foreman never has a manager, editor or advertising manager who can handle his job. The editor has a fair understanding of what is required in a mechanical way for news columns and the advertising manager has the same knowledge regarding advertising columns. What the advertising manager is doing regarding his columns does not concern the editor, and the advertising manager has the same opinion of the editor's columns. Then there is the circulation manager who has to sell the finished product in competition. All three of these departments can cause an increase in expense in the composing room. All three have easy access to the management with more favorable reception than a foreman receives. All managers consider these three departments the vital factors in putting a paper over. The composing room is considered an item of expense. The successful foreman tries to cooperate in every way with the three departments, the heads of which are naturally looking out for their own advancement. Everything is fine until revenue is de-

> *I meet many foremen today who tell me what is wrong with some other large composing room that in their opinion is costing too much to operate. Fifty per cent or more of the difference in costs may be due to extravagances the management sanctions. When this condition exists you have to be something more than a first-class printer with foremanship experience to change it. Some managements might desire lower costs, but want the whole reduction to come from composing room operations, never giving a thought to the two sources that supply the composing room with material for manufacture, namely, the editorial room and the advertising department.*

*President, Matrix Contrast Corporation, New York, New York. Abstract of Paper Delivered before the A. N. P. A. Mechanical Department Conference, Cincinnati, Ohio, June 7-8-9.

creasing rapidly, then the foreman finds himself "holding the bag." The department heads he works with are naturally going to look out for their own interests first.

The management wants expenses decreased a certain amount. The editor cooperated by cutting his staff and reducing salaries, but still sends the same amount of composition to the composing room. The advertising manager says, "I must give the stores what they want in the way of service to keep our competitors from getting the accounts." This means more composition and handling with less advertising space for the composing room. The circulation manager states what will be necessary to hold up circulation, and his opinion is accepted.

The advertising manager and circulation manager have an advantage over the foreman in any discussion, as both are trained in salesmanship. When the foreman is told what is expected of him in the way of cooperation in cutting expenses, it is only natural he looks bad unless he has indisputable facts to back his assertions, as to why he requires a certain amount of help.

Some foremen think that because the business office keeps all the statistics. Why should they bother? The business office does keep them, but they are not compiled for the purpose of holding your position for you or for your advancement. These same statistics have proved to be a boomerang to many foremen the past two years, particularly the last five months.

With decreased revenue the manager is familiar with the changes made in the departments he supervises, and he knows what changes are necessary to effect a certain saving. The same does not hold true of his knowledge of composing room operations and he relies on statistics which show percentage of increase or decrease in advertising and pages published. He has no summary of composing room conditions that affect cost. The summary should be known by the foreman, and it cannot be compiled in an intelligent, effective manner unless the foreman has been keeping statistics of his own over a long period of time. Therefore, the knowledge a publisher acquires of composing room operation (the most difficult department to understand from a cost basis, and the department with the largest payroll) depends upon the foreman's ability to convey that information to him. The poorest time to start a course of instruction is when you are "under fire."

The foreman has no control over most of the changes which increase costs, but if he calls these changes to the attention of the management as they occur and makes the management assume responsibility for the same, and carefully compiles statistics and dates on each change, with reasons and the fact that they were OKd by the management, then he will be in a position to enter into a discussion, backed by facts, and say: "Here are the things I am responsible for and can change; other operations costing so much per year over former costs were started with your approval, but to make any reduction it will require your sanction to discontinue them." During the course of assembling these same statistics, they may show you where you are slipping, before anyone calls it to your attention, and give you a chance to get straightened out.

I have never been in a newspaper composing room that had figures covering average page cost of setting different kinds of copy, viz: classified, local, national, automotive and financial advertising.

Every foreman realizes it is impossible to set, read and makeup a page of classified ads in the same time required to set a page of local advertising. Also that it only requires a fraction of the time required to handle a page of local advertising, to handle a page of national, automotive and financial, which comes to you in the form of cuts and mats, with very little machine, floor and proofreading time required to handle. Estimates of foremen on time required to set and handle a page of classified ads over a page of national would probably vary from 10 to 1 to 20 to 1. Estimates on average time required to handle local advertising over national would probably be at least from 5 to 1 to 10 to 1. This shows the effect a change in classification of advertising can have on page costs. The large papers with the highest payrolls have had decided changes in classifications of linage.

Many foremen I know of wish they had figures on the average cost of handling the different classifications of advertising at the present time, when they are being confronted with statistics by the publisher and asked to explain the difference. Every foreman realizes this fact, still none of them protect themselves with statistics on the same.

Comparative page costs are not a reliable yard stick. A foreman should know more about what his pages contain when criticized about his own operations with former years, especially when some other paper is held up as an example of efficiency.

Practically every foreman has figures on what hours are required for store alterations as a whole, but no comparative figures to show when any store started to cause a higher percentage of non-productive time. When you are criticized on costs this information would be valuable.

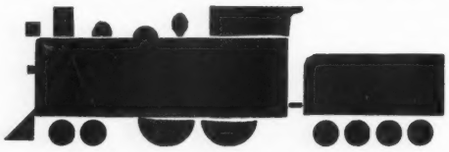
How do hours required for store alterations (a condition a foreman cannot change without cooperation from the management) compare with hours required for office corrections on all advertising?

Recently I met a foreman, who had statistics covering this. For the past sixteen months he found office correction hours exceeded store change hours 78%. This same foreman who has been in his present position three years, investigated and found that in 1931 he had less pages than in 1919, that the scale was 108% higher in 1931 but his page cost had increased only 24%. Making this comparison by years in your own office should interest you, and if there is any year that shows a higher percentage of increase than the scale increase called for that you cannot account for, consult your advertising and edition statistics, and files of past issues and try to find out why the difference exists.

Another source of a large amount of non-productive time in the composing room can be caused by a difficult style. A style is too difficult when the majority of your news operators are constantly resetting composition and cannot understand the style. The style book is made up by the composing room and can be changed.

ENGINE SILHOUETTE CUT FROM STOCK MATERIALS

Victor H. Smith, Cleveland typographer, in constructing this engine silhouette, used materials which may be found in many composing rooms as follows: Boiler and engine tender, two pieces, type-high base; small wheels, 12-pt monotype black dots; drive



wheels, 24-pt. monotype black dots cut in half; cow catcher, 12-pt. monotype triangle; tender connection, 2-pt. rule, 6 pts. wide; flue cover, 24-pt. length 3-pt. rule undercut to size; headlight, 24-pt. length 6-pt. rule cut to size; stack, sand dome and other pieces on top of boiler, cut from 12-pt. black rule border.

What does a difficult style cost in resetting news matter? I found a tabloid paper with a style that caused 10.52% non-productive time on the part of operators resetting and in the same city a well edited paper that had more reason to have a style, with 5.38% non-productive time for style errors.

I pointed out a similar condition of a high percentage of reset (on account of a difficult style) to a foreman on a paper employing over 100 news operators. He overcame the same by placing an intelligent operator in charge of proofs on each shift. The operator had authority to mark all non-essential marks off the proofs. These proofs were saved and a conference held with the proofroom daily, until unnecessary style marks were eliminated.

Do you know of any easier way to increase production than to keep from resetting composition? In practically every large office the foreman compiles statistics on hours required for store alterations. Hours he is not responsible for, hours given to advertisers as service, and very rarely charged for. Why does a foreman do this? Because he wants to show why so much time was non-productive, with little hope of ever having it changed. What percentage of reset in the composing room is the foreman directly responsible for, such as bad style, and how many hours are consumed in comparison to store corrections? The answer should be interesting. But very few compile statistics on their own faults.

One foreman with statistics covering non-productive time he was responsible for in correcting news composition posted a list weekly with the linage of each news operator and amount of corrections. I believe the psychology is good. No operator enjoys the fact that every employe knows he is the "dirtiest" operator in the plant.

BEST TALKER GENERALLY WINS THE ARGUMENT

One thing is certain, if available time for certain classes of copy is not used as it occurs, and time copy fills the gap; that time is gone and any overload following that day cannot be distributed properly.

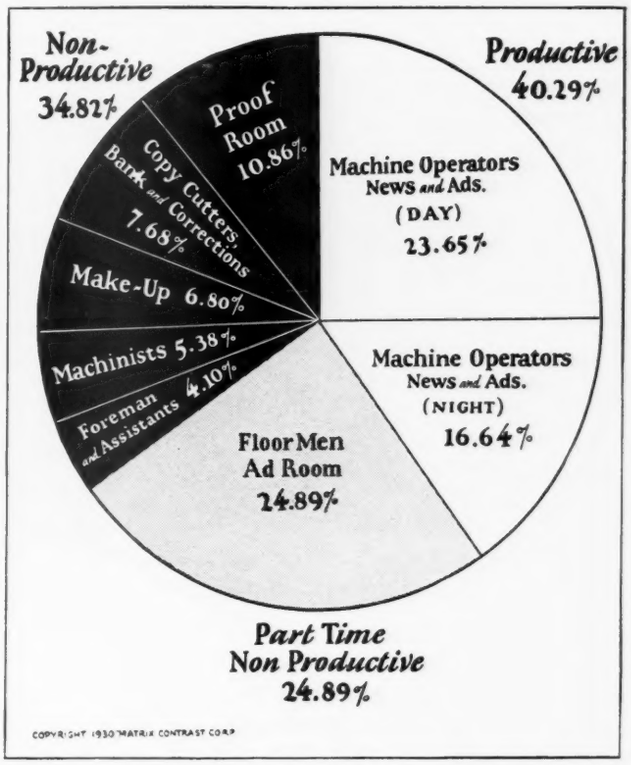
As a rule a foreman waits until he gets into a jam, and the edition is late and then he tries to argue about how editorial copy was received formerly and how it is received at the present time. The editorial room says you are wrong, and right or wrong, the best talker generally wins the argument. I believe it is better to start any discussion armed with facts, then the other party is "on the limb"—not you.

Overset of news columns causes a considerable loss of time in large offices.

Recently I was in a large composing room where the foreman had been successful in getting support from the management to change this condition, a condition many papers must face with large editorial staffs and smaller papers at the present time.

This paper has a copy control system in the editorial room. Supervised by an editorial room employee well versed in estimating space news copy will fill. This man knows the number of columns alloted to news space for the night. This space is divided on a percentage basis for departments. All copy goes through this man's hands. He enters up under each department the amount of space they have used of their allotments. As soon as a department reaches its limit he notifies them. He also makes a notation if a head is missing or a lead and notifies the department at a time he thinks the composing room should have the same.

This system is a real constructive help to a foreman. A foreman, however, cannot make this change without the help of the management. This paper takes care of the problem of late corrections on ads by having institutional ads set for each store that is in the habit of just making the deadline. If the regular ad is not ready at the time page is scheduled to go the substitute ad is inserted for the edition. The institutional ads cover store features, such as fur storage or store policy. These substitute ads are arranged so white space can be expanded or contracted with ease. This reduces the number of ads it is necessary to carry for each store. This paper overcomes having a line out of a paragraph in railroaded news matter (a common occurrence in some papers) by having the proofreader stop reading the proof as soon as he notices an "out." The proofreader goes to the correction bank and sees that the line is inserted before he finishes reading the story.


Non-Productive 34.82%
Productive 40.29%
Proof Room 10.86%
Copy Cutters, Bank and Corrections 7.68%
Make-Up 6.80%
Machinists 5.38%
Foreman and Assistants 4.10%
Machine Operators News and Ads. (DAY) 23.65%
Machine Operators News and Ads. (NIGHT) 16.64%
Floor Men Ad Room 24.89%
Part Time Non Productive 24.89%
COPYRIGHT 1930 MATRIX CONTRAST CORP

How much of the dollar spent in the composing room goes for productive labor?

This chart was made up from newspaper forces, comprising 7% of the membership of the International Typographical Union employed on newspapers in 1929.

It showed approximately 65% of the force productive and 35% definitely non-productive. Of the productive force, estimates place one-third of the ad alley's time non-productive, correcting office proofs and making store changes. Statistics show at least 12% of operators' time is non-productive correcting their own office proofs on news and ads, with no allowance for store alterations on ads or editorial room changes on news. So at the best, the average productive time on these papers was 52%. The average of all the papers showed one proofreader to four operators. The larger papers with a high rate for advertising linage, average one proofreader to three operators, as the advertising composition must be O. K. An interesting comparison can be drawn here. In the commercial field where every line of composition must be O. K. one of the largest plants in the country has 8 proofreaders for every 10 operators. When the proofreader is apt to lose his position if he misses an error, he naturally reads proof slower. There were 17 machinists for 100 machines, and 13 machinists for 100 operators.

(Continued on page 20)

Third Progress Report on Study of News Ink and Newsprint

By B. L. WEHMHOFF*

THE purpose of this research program as outlined in the first progress report was to determine those qualities of newsprint paper and news ink which could be specified and controlled in order to obtain better printing results, and to develop tests to insure quality and uniformity of those materials. The scope of the work has been expanded to include special tests for individual members of the association† in order to assist newspapers experiencing certain troubles to obtain better and more uniform printing results, and also to accumulate information as to the causes and cures for the more common printing troubles.

RESEACH REPORT

Some progress has been made in a study of the printing troubles listed in our previous reports. Since the problems are more or less interrelated it was deemed advisable to work on several at one time rather than devote full time to one or two. As a result, no final conclusions are as yet possible. A complete report of all the work done is included, however, due to numerous requests for such information.

STRIKE THROUGH

As stated in last year's report, the principal cause of "strike through" was found to be a yellowish staining constituent present in varying amounts in practically every news ink oil. The work done on "strike through" has therefore been mainly on a further study of this constituent.

NONSTAINING OILS FOR NEWS INKS

A marked improvement has been noted during the past year in the quality of oils used in many of the samples of inks sent in for analysis. This indicates that the work done so far in the effort to obtain nonstaining oils has had considerable effect in improving the quality of commercial inks, either through the initiative of ink makers themselves or at the request of the publishers. This increase in quality has frequently been accompanied by an increase in price. Under present methods of purchasing news inks, the publisher can not always be sure that the grade of ink requested is being received.

The work on nonstaining oils has been conducted in cooperation with oil manufacturers in an effort to obtain more definite data on such oils and to develop technical specifications to be used in the purchase of inks made from them. Such specifications together with definite methods of testing, will provide news-ink purchasers with the means of not only purchasing such inks, but of assuring themselves in advance of their use that the proper inks have been delivered.

It was stated in last year's report that several drums of a nonstaining oil had been ordered to match a laboratory sample which had been found to be an excellent vehicle for news inks and to possess good nonstaining qualities. Unfortunately the delivery did not match the sample in flow and other physical qualities and replacements were equally unsatisfactory.

In an effort to determine what step in the manufacture of the successful laboratory sample was not being properly carried out in the commercial production, cooperative tests were conducted with the oil manufacturer. Numerous samples, made by varying one or more steps in the treatment of the oils, were submitted for test. Inks were made from all samples, but in no case was the product equal to that obtained with the first laboratory sample.

Ten samples, received from a second oil company, were also tested but none met the requirements for flow and nonstaining properties. A third oil company, in an effort to determine what type of oils would give satisfactory results, submitted samples from practically every oil field east of the Rocky Mountains, as well as blends of different types of oil. Only two of these samples were found to have the requisite physical characteristics for news ink use.

This experimental ink had satisfactory flow, good length, showed little "strike through," gave good and even coverage, and did not "mist." A larger quantity of this oil has been received and a longer and more conclusive test will be made shortly on a daily newspaper. We feel that the problem of producing an oil in commercial quantity which will eliminate "strike through" to a large extent has been solved. The next problem is to devise specifications and tests to enable the oil refineries to control the supply to the ink maker, to insure the ink maker that the correct oil is being delivered, and to provide specifications and methods of testing of news inks for use by the publishers.

SHOW THROUGH

It is often difficult to distinguish definitely between "show through" and "strike through." "Strike through" as a printing trouble is usually applied only to cases where the oil penetrates a sheet of paper and appears as a brown or yellowish stain on the opposite side. Actually, light-colored nonstaining oils may penetrate the sheet as much as the darker oils, but because they do not appreciably stain the paper, they do not cause trouble with "strike through." However, such oils have a tendency to render the paper fibers transparent and thus permit the pigment particles to be seen through the sheet.

This type of "show through" has become much more noticeable in the past year or so since more papers have been using news inks made from nonstaining oils. The most apparent remedy for this trouble is a more opaque sheet of newsprint. Work has been planned to devise methods or obtain materials which will counteract the effect of these nonstaining oils in making the paper more transparent.

OFFSET

Little work has been done on offset as comparatively little complaint has been received concerning this printing difficulty. One cause of offset is believed to be static electricity, which causes the sheets of newly printed paper to stick together, with the resultant transfer of ink to the adjacent sheet. Other suggested causes of offset are overcalendared paper or the use of too much weak ink in an effort to obtain good color. Too little impression with too much ink also tends to cause offset.

FLYING INK OR INK MISTING

Inquiries have been made in 20 newspaper plants in the past year as to the amount of ink flying experienced at present or in the past, and information was sought as to possible

*Technical Director, Government Printing Office, Washington, D. C. Abstract of paper delivered at the A. N. P. A. Mechanical Conference, Cincinnati, Ohio, June 7, 1932.

†American Newspaper Publishers' Association.

causes and methods of correction or control. There are evidently a number of factors affecting this trouble and no definite conclusions on either the cause or cure are possible as yet.

Many of the suggested causes appear on examination to be contributing or secondary rather than main causes. One example is the idea that excessive misting is caused by improper pressroom ventilation. There is no doubt that a poorly designed ventilating system will succeed in making "ink misting" a serious problem to those working in the pressroom or even in adjoining rooms, but it is not logical to believe that a draft of air will cause the ink to turn into the form of a mist and rise off the presses. Again, the high speed of present-day presses is sometimes claimed to be the sole cause of flying ink by those who have forgotten that ink "flew" long before the invention of high-speed presses, and that for some reason or other some high-speed presses manage to run without being bothered with "misting." Old or improper blankets or rollers or the use of too much ink are probably contributing factors, but the experience of many pressmen has shown that these are by no means the only ones to be considered.

One suggested cause of "ink misting" which seems logical is that too thin an ink is being used on the high-speed presses, especially those equipped with spray fountains. It was noted that in most cases when the body of the ink was increased the ink misting was eliminated or at least greatly reduced. This does not mean, however, that the ink should be as heavy bodied as that used on the old-style flat-bed presses. There is a limit to which the consistency of the ink may be increased without undue heat being generated on the rollers, and beyond which the ink will not distribute or cover the plates evenly or else will not flow properly. The consistency limit for different press speeds has not yet been determined. Until this is ascertained, it is suggested that those who are troubled with excessive "ink flying" cooperate with the manufacturer of their ink, and increase the consistency of their ink slightly and find out whether the trouble can be at least partially eliminated in this manner.

The cheapest and apparently most satisfactory method of increasing the consistency of news ink is to use an oil of a higher viscosity. It is doubted whether thickening an ink with increased pigment, rosin, or similar materials will eliminate "flying ink" as successfully as will the use of higher viscosity oils.

It is not yet known whether it is merely the increase in consistency of the ink that lessens "misting" or whether altering some accompanying characteristic such as "false body," "tackiness," or "shortness" may eliminate this trouble. It is hoped that commercial scale tests can be made later to determine which of these physical characteristics of ink are of value in this respect.

VARIATION IN CARBON BLACKS USED IN NEWS INKS

Tests have been made on a number of carbon-black pigments in an effort to determine whether there is sufficient variation between different brands of black or different deliveries of the same brand to cause the marked variation occasionally found in deliveries of supposedly the same ink. Some of the possible causes of such variations which might be attributed to the pigment are: Variations in oil absorption, particle size, and moisture content. The presence of gritty material might also have some effect.

It is well known that different blacks vary in their ability to absorb oil and their use for a particular purpose is often based on this difference. Practically no data have been published as to the extent of variation in the oil absorption of different deliveries of the same brand. Our tests showed that some blacks varied widely in oil absorption, even in samples taken from different bags of the same delivery. This may account to a considerable extent for the variation found in some news inks. Other carbon blacks, however, were found to be very uniform in this respect.

Trouble is rarely experienced due to blacks containing a large percentage of gritty material. The amount of such material present in most blacks now used is so small that it should cause little variation in the finished inks.

No progress was made during the year on the study of the effect of particle size and the flocculation or dispersion of pigments in the oil. Work along this line has been planned for the future.

The moisture content of carbon-black pigments shipped in paper bags varies with changing atmospheric conditions. In an effort to determine the extent of this variation three pigments, one high-grade and one medium-grade carbon black, and one lamp black were tested as follows:

Moisture determinations were made on all samples as received. Three samples of each pigment were exposed for two days under different relative humidity conditions, after which the percentage of moisture in each was determined. One set of samples was placed in a closed chamber containing a drying agent, at a relative humidity of 20 per cent. A second set was placed in a room at a relative humidity of 50 per cent, and the third set was placed in a closed container with a relative humidity of approximately 80 per cent. The temperature in each case was 70° F. The results of these tests are given below:

Kind of pigment	As received — moisture percentage	20 per cent relative humidity — moisture percentage	50 per cent relative humidity — moisture percentage	Approximately 80 per cent relative humidity — moisture percentage
High-grade carbon black	2.23	1.48	7.34	7.65
Medium-grade carbon black	1.80	3.22	3.49	4.50
Lamp black	1.25	.01	4.58	9.55

Table 1.—Effect of atmospheric conditions on the moisture content of carbon blacks.

These tests indicate that the moisture content of carbon blacks varies not only according to storage conditions but is also affected by the quality of the material. It is apparent that ordinary variations in atmospheric conditions do not affect the moisture content of medium-grade carbon blacks such as are used in news inks to a sufficient extent to influence the characteristics of inks made from them.

This conclusion was substantiated by tests of inks made from the various blacks containing known amounts of moisture. A comparison of the inks showed that as much as 12 per cent moisture in the carbon black has relatively little effect on the consistency of the ink. The higher percentages of moisture have a slight tendency to decrease the viscosity of the inks, but variations in the moisture content of medium grade blacks as received by the ink manufacturer have practically no effect on the finished news ink.

The setting of the rollers and the amount of grinding were found to have a considerable effect on the consistency of the ink. Differences in method and amount of grinding are evidently more responsible for variations in news ink consistency than any other factors.

When sufficient data has been obtained to determine the really important characteristics and properties of the carbon blacks necessary for satisfactory news-ink work, definite specifications covering these materials can be drawn. If such specifications are developed, it might be advisable to require ink manufacturers to certify that the blacks used in their inks comply with the specifications.

To be Continued

Letters To The Editor

OBTAINING NEWSPAPER COLOR PLATE REGISTER

Wilkes-Barre, Pa., July 19, 1932.

Editor, Printing Equipment Engineer:

It occured to me that perhaps some of your readers might be interested in the method we use in producing plates for printing color advertising.

We all know that in advertising, the attraction value of color is perhaps its sole value. We also know that with the average newspaper using dry mats it is next to impossible to achieve perfect register when the usual method of rolling two different mats from two separate forms is used. This especially applies where anything other than perfect register detracts materially from the attraction value of the finished product.

Within two years' time, the *Times-Leader* has carried approximately thirty pages printed in black and one color. The issue of June 17 carried a page for Sinclair Refining Co. This was our first page of national advertising. The issue of July 15 carried another page for the same concern.

The agency handling this account sent to us two electros of each page. Upon checking, we found that the first pair of plates would not register even before mats were rolled. You can imagine what the result was after a dry mat had been rolled from each of these plates and curved plates cast from the mats. The color mat was almost entirely open through the middle of the page, therefore, the shrinkage of this mat exceeded that of the black by approximately 1/8 in.

So we dumped the plates in the pot and made a new set by the following method: A plate for the black is made in the usual way. From a sheet of ordinary tag board, we then cast a plate with a solid face. Now, the "black" plate is put on the press and a proof struck on the press blanket. The "black" plate is removed, the solid plate put on and the proof is offset onto the solid plate. The parts of the solid plate that are to print in color are then outlined by hand just as any engraver would tool an outline halftone. The plate is routed on a curved plate router and we have a set of plates that will print in perfect register.

The writer has used this method for over twelve years in several locations and insofar as I know it is original with me. You may use your own judgment as to whether the idea is worth passing along.

Very truly yours,
K. G. Laycock, *Pressman,*
The Times-Leader.

KEEPING DOWN THE OVERHEAD

Springfield, Ohio, July 6, 1932.

Editor, Printing Equipment Engineer:

Your magazine reaches me regularly. I enjoy reading it as it contains a world of information and is all that the name implies.

I would like to make a suggestion that I think would help the printing industry as a whole.

Many of the articles refer to newspaper problems. We commercial printers would like to see and read some articles written about our problems. Just now there are plenty of them.

Accepting it as a reality, newspaper executives are having their difficulties, but they will weather this storm more economically than the commercial printers because practically all newspaper plants purchase the latest printing presses, employ the fastest and most improved methods of turning out work and have better coordinated and more efficient staffs in their organizations.

Not so for the commercial printer. In some plants any machine that runs seems to be quite all right, and the methods used years ago are still with most of us.

Taking the composing room of a newspaper as an example, practically all the time of this department is productive. What newspaper composing room now would have 50% non-productive time? It is not uncommon in commercial plants for printers to have 50% or more non-productive time. This is no fault of the workmen. Its solution lies in productive and distributing methods which must be solved by officials, as it is at their door.

We are aware that newspapers and commercial printers have two distinct methods of reaching the ultimate consumer, each having productive and non-productive time problems.

Newspapers are far ahead of commercial printers because they have made a research study of the problems confronting them. Some six-day papers have adopted a Sunday edition to advantage in overcoming this non-productive problem.

Most commercial shops are small, for the reason that the owners make no research of their problems or take it for granted there is no problem confronting them.

Every commercial shop is equipped to print labels or some similar kind of work in slack time. Non-productive time could be made profitable by doing this class of work or any kind of printing where there is no time limit and the demand is constant.

It is realized that the commercial printer who is going to benefit most and survive the condition that we now have is making a research of the printing market and going in for something to keep his overhead down to a minimum.

He will find to his surprise about half his equipment has become obsolete in the last few years. The quicker he rids himself of these worn-out presses and type the sooner he will feel sure he has chosen the right business for his life's career.

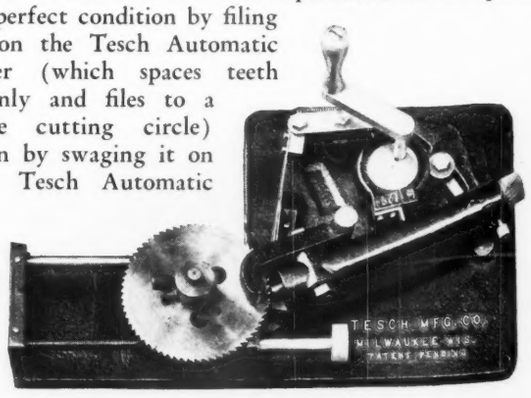
Last but not least, half of this equipment could be discarded. There are probably cases of type which have not been used in years.

Save on rent! Make room for more operative efficiency!

Yours truly,
Harvey H. Coyle, *Superintendent,*
Ralph Printing Co.

Automatic Saw Swager

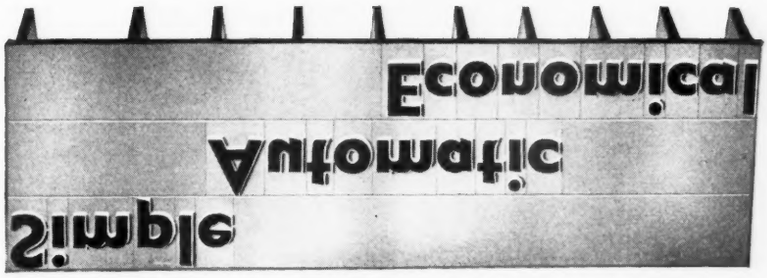
Tesch Manufacturing Co., 419 N. 27th St., Milwaukee, Wis., has recently developed and placed on the market an Automatic Saw Swager to be used in general by the printing trade. It is claimed that an inexperienced man can put a saw in perfect condition by filing it on the Tesch Automatic Filer (which spaces teeth evenly and files to a true cutting circle) then by swaging it on the Tesch Automatic



Swager each tooth is given the same amount of swage automatically. The swaging speed is about 75 teeth a minute.

All working parts of the Swager are hardened where necessary to give long life and the machined parts are plated. It swages circular saws from 3 to 14 in. diam. It will also swage band saws. The swager is hand operated and fully automatic.

TRADE LINOTYPE MARK



THE

LINOTYPE DOUBLE QUADDING AND CENTERING DEVICE

Will instantly quad

to the right

to the left

or center

This is a development from the Linotype automatic quadding device which has been in successful operation since 1905, and incorporates many exclusive Linotype features, including the advantage of quadding to the right. It will quad or center lines of any length, with or without spacebands.

MERGENTHALER LINOTYPE COMPANY
BROOKLYN, N. Y.
SAN FRANCISCO · CHICAGO · NEW ORLEANS
CANADIAN LINOTYPE, LIMITED, TORONTO, CANADA
Representatives in the Principal Cities of the World

Linotype Metro No. 2 Family

Progress In Offset Printing

By Otto R. Trampusch*

(Concluded from July Issue)

In making an offset-press plate for a planographic press, a negative is required as a print-down medium, and for a deep-etch plate a positive is required, both halftones. In both instances, the negative or positive is brought in contact with a press plate which is coated for planographic printing with an albumin coating and for deep-etch with a bichromated glue solution. The print, in either case, can be made in a vacuum frame or in a photocomposing machine. After exposure both are developed by water and finished ready for the press, by their respective treatments.

A glue-coated plate, such as the deep-etch, has made it possible to use the positive retouch process, which in turn will make it possible to etch a positive on glass or film, will simplify the making of color plates considerably, and will cut out two camera operations, provided the press plates are made from positives.

Another cheap method of making halftone positives without a camera has been developed by taking a sensitive film which is first exposed to light and thereafter put in an offset proofing press upon which the halftone and type impression will be printed on with good black ink and dusted in with mixed graphite and lampblack powder. After this is done thoroughly, the film is developed in a hypo bath. Then the film is rinsed with water and dried. A positive is thus completed for a printing-down medium, used either in a photocomposing machine or in a vacuum frame for making offset-press plates.

Indications are that offset litho from deep-etched plates will fill a gap originally intended for rotogravure at a lower cost and with better reproduction due to color control, register, etc.

In keeping with the progress that has been made on printing plates, rotary sheet-fed offset presses have been developed to obtain the finest quality of printing at higher speeds. Single-color sheet-fed presses, printing light-weight stock in sheets 41 by 54 in., are today being operated at speeds of 4000 impressions per hour. The water motion on these presses has been developed to such a high degree that the difficulties originally experienced with this motion have been entirely overcome, and it is now possible to get the finest regulation of dampness without constant attention from the operator. The inking motion on these presses has also been improved, reducing the amount of waste in printed sheets to a minimum, and it is now possible to obtain a uniformity in color control from beginning to end of a job that heretofore was not possible. Registering mechanisms giving almost perfect register all over the sheet, requiring little or no attention at the speed mentioned, are now in use on at least one make of press.

*Engineer, R. Hoe & Co., New York, N. Y. Paper delivered before the Third Conference, Printing Industries' Division, A. S. M. E., New York City, March, 1932.

Two-, three- and four-color sheet-fed offset presses of several types are now in use, in one of which all the colors are printed around one common impression cylinder without transferring the sheet during the printing operation, and another in which each color is printed on a separate impression cylinder, transferring the sheet between each color to the next impression cylinder. It is my personal opinion that the best results are obtained on a machine of the first-mentioned type.

Several types of offset web presses have been developed for long runs, printing periodicals, mail-order catalogues, magazines and wrapping paper, on any kind of stock. The only drawback there has been in the development of the offset web press has been the life of the plate, but recently the deep-etch process has eliminated this difficulty, runs averaging 250,000 impressions having been obtained from such presses without changing plates.

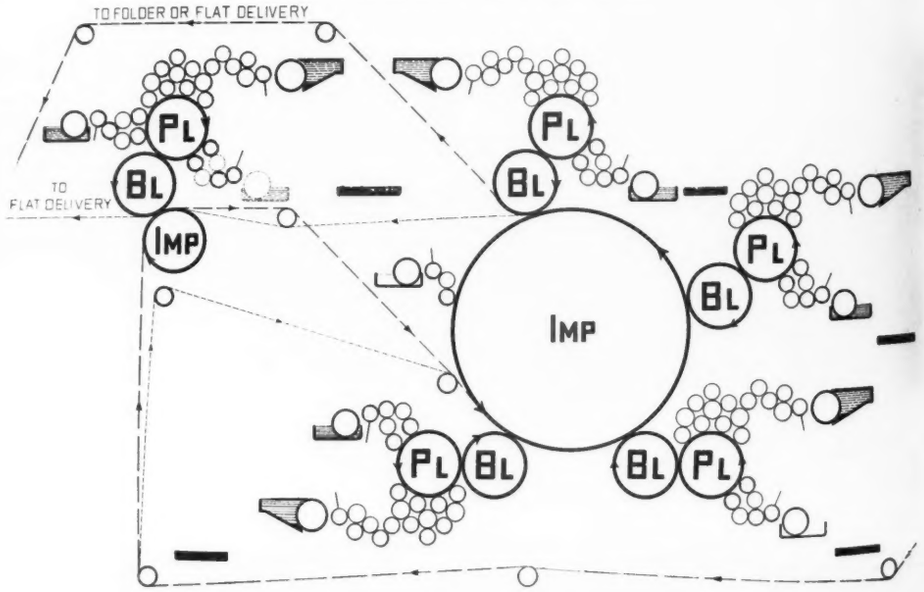
Offset web printing has been used longer and has made greater progress in Europe than it has in this country, owing to the fact that the European trade does not require such long runs for such fine work as we do in this country.

There are three types of offset web presses in general use in Europe. One of these is the roll-fed, printing up to four colors on one side of the web and being cut and delivered in sheets after being printed; this type of machine being used for labels and any kind of wrapping paper, even for thin tissue paper. This type of press has a running speed of 8000 revolutions per hour.

There is another type of press which is perfecting, printing both sides of the web between the two rubber-blanket cylinders simultaneously; this type is usually used for straight black work, and by utilizing extra decks it can be arranged for running several webs through the press for black-and-white printing, or leading the one web between the various units for color combinations.

There is still another type of press which is being used for printing newspaper supplements or magazine sections by printing in one operation one color on the one side, and then by arranging up to four pairs of cylinders or units around a common impression cylinder and printing in succession up

HOE MULTI-COLOR WEB OFFSET PRESS



Here's what The Atlantic Electrotype & Stereotype Co. Inc. thinks of

G-E Electric Heat

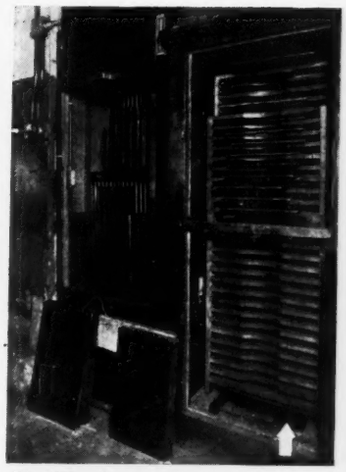
Brass-plating bath heated by a G-E lead-covered immersion unit

This progressive New York City electrotyper, one of the largest in the country, has installed G-E electric heat in every device in the plant where heat is required.

We asked the president, Robert Schaefer, for the facts. Here they are:

1. Greater uniformity in the work because of the accurate, automatic temperature control
2. Better working conditions
3. Greater safety
4. With perfect heat, the job of getting out A1 work is put squarely up to the operators
5. Mr. Schaefer is convinced that electric heat is costing him no more, and probably less, than the fuel heat formerly used

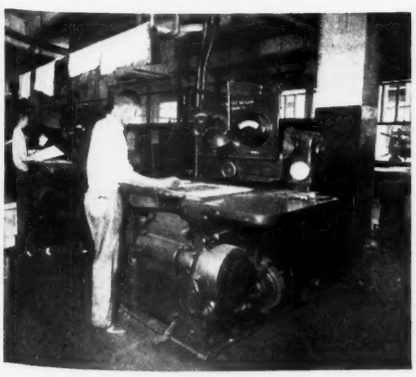
The G-E heating specialist in the nearby sales office will visit your plant and recommend the units that will change over your plant to electric heat in as short a time as a single week-end. He'll also tell what it will cost to install and operate. You'll be pleasantly surprised. Call him.



Two Wessel case-warming cabinets each equipped with two G-E strip heaters

Wessel electrotype furnace heated with seven G-E electrotype immersion units

One of three Wessel warming tables each equipped with three G-E strip heaters



Three Wessel molding presses each equipped with 27 G-E sheath-wire units

One of two G-E melting pots for stereotyping

570 167

GENERAL ELECTRIC

You Bet Your Life Imperial Saves Fuel!

IT DOESN'T MAKE ANY DIFFERENCE whether you use electricity or gas if you will use Imperial Type Metal you will be saving on fuel. Here is why. The lead, tin, and antimony in Imperial Metal are in a 100% solution, in reality a perfect mixture. This 100% solution enables Imperial Type Metal to be cast at lower temperatures and that is where fuel saving comes in. In addition to saving fuel you have less dross. When you study the facts about Imperial and the Plus Plan you begin to realize why they lower metal costs—and lower costs are the best reason in the world why you should

stick to

Imperial

METAL

THE IMPERIAL TYPE METAL CO.
Philadelphia · New York · Chicago · Los Angeles

to four colors on the reverse side of the web. Then the web is either cut into sheets and delivered on to a pile delivery or run into a folder and delivered in folded sections, or it can be rewound if necessary.

There is also in operation a web offset press, printing two colors on one side of the web and four colors on the other. This press is also arranged for delivering in sheets and folded sections.

These presses have been built for a running speed of up to 12,000 cylinder revolutions per hour, and I see no difficulty in buliding them in this country for a running speed of 15,000 cylinder revolutions (30,000 copies) for newspaper supplements.

When taking into consideration the progress that has been made and is now being made in offset printing plates and machinery and the high production possible, a vast field is opened to this class of work.

Foremen, Know Your Costs!

(Continued from page 13)

I believe statistics covering the force, equipment, editions, news space and linage, with a breakdown of composing room force as to number in each department, would be more beneficial than page cost comparisons. Page costs only show the result of departments being out of line, and do not give you any idea of where to start if you wish to adjust them. I know in the large cities there are papers that have twice as many lines of news composition per column as their competitors have. So columns of news space do not mean anything unless analyzed.

When compiling the statistics this chart was made up from I made percentage comparisons of variations from the average of each classification of force for every paper. Then I looked up statistics to back up my own personal knowledge of the paper, to see if the variation was justified. A few of the comparisons disclosed that, operators averaging 40%, varied from 31% to 55%. The paper with 55% operators carried 39% of linage week days with 66% news space. Sixty-one per cent of advertising was published Sundays. Another paper of similar size in the same state carried 70% of advertising week days with 50% news space. Operators on the latter paper only represented 39% of the force. The paper with the high percentage of operators used 20% more proofreaders than the other paper.

This demonstrates conclusively that: 1. If the bulk of advertising falls on one day your composing room operations from the point of view of man power is adversely affected. 2. If your advertising is evenly spread over the week your force can be handled most economically.

The paper with the smallest variation in advertising and news colmns published daily, should have the lower cost. A foreman on this type of paper can keep a well-balanced force and get better results.

I do not believe the publisher gives this angle much thought when he makes comparisons with other papers. If the foreman with the higher costs does not know the answer he is out of luck.

Floor men in ad room averaging approximately 25%, had a low of 15% and a high of 32%. The low was a six-day paper, with 25% of advertising national. Two highs of 32% were in cities of one-half and one million, seven-day papers with three times the linage and heavy department store and classified advertising.

Proofreaders, averaging 11% of the force varied from 5 to 14%. The low man was a tabloid with a high percentage of composition run around cuts, with many different measures. This required considerable time on the part of operators, but comparatively little on the part of proofreaders. The high

Straight Talk

ON THE CHARGE OF OVER-EQUIPMENT *in the* PRINTING INDUSTRY

The printing industry today is alarmingly over-equipped as charged—but it is an over-equipment of the obsolete. Recession years have left their mark indelibly upon pressrooms far and wide. The industry is swollen with obsolete machinery from retarded modernization programs. There is need for understanding of the facts

THE problem of over-equipment answers itself in the solution of the obsolete equipment problem. The obsolete press is hazardous—equally a menace whether remaining on the floor of the original purchaser or falling into subsequent and less worthy hands. Industry does not suffer from over-equipment of modern presses but from under-equipment of these new and up-to-date machines.

A press is obsolete when it will not produce profitably wanted printing in successful competition. It is literally a fact that the printing industry, in shops both large and small, must junk the obsolete to survive. It is time for a house-cleaning in pressroom equipment—for renovation that will actually junk the junk. It is time to stop pointing the finger at neighbors' shops, and face actualities of equipment in our individual plants.

The widely publicized Harris-Seybold-Potter announcement to scrap obsolete equipment taken in trade at its true value is especially timely in the reconstruction days ahead. Within the last three years there have been eleven new Harris presses designed and placed on the market—on any of which used equipment may be traded at its resale value. Over-equipment of the obsolete—under-equipment of the modern—both must go that the Graphic Arts may go forward.

HARRIS · SEYBOLD · POTTER

HARRIS-SEYBOLD-POTTER COMPANY // General Offices: 1385 Union Trust Building, Cleveland, Ohio
Sales Offices: New York, 461 Eighth Avenue / San Francisco, 555 Howard Street / Chicago, 343 South Dearborn Street / Dayton, 813 Washington Street // Factories: Cleveland and Dayton

of 14%, a morning and evening, seven-day paper was in a city of a million. Advertising was carried on a combination rate. Proofreaders read advertising once for morning and evening, but news was read twice. This paper was 27% under the average for men in ad room. The lower percentage of men in ad room raised the percentage of proofreaders above the average.

There is one line of thought regarding newspaper production today which I believe the foremen themselves are responsible for, and that is practically every publisher believes the easiest way to cut production costs is to increase the number of lines each news operator sets. The reason for this is every foreman has statistics on lines of news matter set. They are the easiest statistics to assemble.

News operators only average 27 men out of each 100 employees.

If a foreman would devote as much time to assembling facts on how the other 73 cents is spent, I believe he would receive more cooperation from the management when he tries to improve conditions.

In closing, my suggestion is to select the best man possible to supervise each department of your composing room. Encourage them, reward them for good performance, as far as possible. Use a pencil instead of a makeup rule. If you do this you will get better results, and you will always be one step ahead of the advertising department, editorial room and the publisher, and you will open many discussions on costs yourself.

After all the conferences you have been invited to when you were unarmed with facts, it is hardly necessary to point out the advantage of being the host, and do the inviting yourself.

Photo Lithography and Offset Lithography

(Continued from page 8)

a small piece of clean glass plate with it, and examining it under the microscope for bubbles and granulations. This solution should be twenty-four hours old and should be well filtered.

COATING

To coat the plate as evenly as possible, it is essential that a whirler be used that revolves the plate from 60 to 80 r.p.m. This speed will give an even and smooth surface, free from bubbles and streaks. If the whirler revolves faster than this, the coating will be too thin, and a scummed plate will result. If the coating is too thick or heavy, the lines will fill in and the work will wash away under the brush. In hot weather the solution will flow much more easily than in cold weather. This can be adjusted by slowing or speeding up the whirler.

Before the sensitizer is poured on, the plate should be counter-etched with a weak solution of hydrochloric acid, 1 to 16 (muriatic acid), and well brushed over with a soft brush. This counter-etch is very thoroughly washed off under running water, as the least trace of acid will spoil the sensitizer, which is immediately poured on while the whirler is running at slow speed. The pouring should be accomplished without causing bubbles to form; to avoid it, lower the pouring vessel very near to the surface of the plate. If the whirler is running too fast while the solution is being poured, the result will be a streaked plate. After the plate is coated and well dried, it is carried to the printing frame and is printed.

PRINTING

The printing should be done by means of a 25-amp. arc lamp. This style of lamp is found to be the best suited for this

SATISFIED WITH CERTIFIED

CERTIFIED DRY MATS

Let Us Prove Certified Value to You

Ease in molding, speed in scorching and certainty in casting are three of the factors which have made Certified the standard of dry mat value.

Mechanical men have found that the Ace* mat at 15 cents for the metropolitan dailies and the 12-cent Certified for the smaller papers offer them the utmost for their money.

However, the best proof of Certified value to you is the Certified mat as it works in your own foundry under your own working conditions. That is why we respectfully suggest that you try some samples free of charge and without obligation.

There's a Certified mat to serve your purse and purpose. Just say the word and we'll do the rest.

CERTIFIED DRY MAT CORPORATION

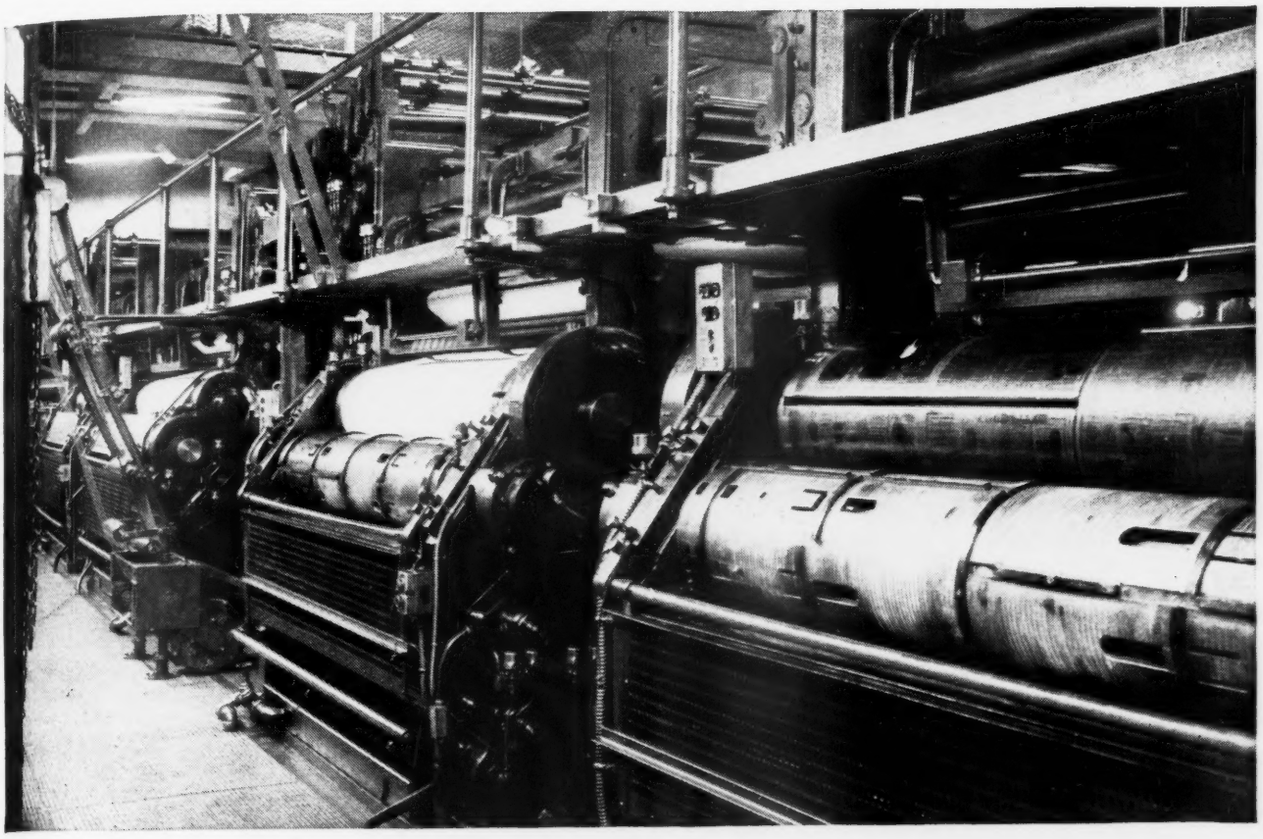
338 MADISON AVENUE ▾ ▾ ▾ NEW YORK, N. Y.

For dependable stereotyping---use Certified Dry Mats

Made in U. S. A.

* Trade-mark registered United States Patent Office

The Boston Herald & Traveler



Ended roller grief six years ago with Goodrich Rollers

THERE'S no denying it. Rollers can cause a lot of grief in newspaper pressrooms. Not only grief but waste.

Six years ago The Boston Herald & Traveler ended such possibility when they put Goodrich Rollers on their presses. No longer did dirt collect on the rollers. Not a minute had to be spent in washing up. Half tones kept clean. Highlights stayed brilliant — blacks, solid. Print became crisp and sharp. Publisher, advertiser and public were pleased.

Today every roller on the 5 Scott Octuple presses in the Herald & Traveler's plant is a Goodrich Rubber Roller. Those that went on 6 years ago are still going strong. They give every indication of being good for many years more.

Newspapers everywhere report the same experience with Goodrich Rollers. Printing is better. Roller care is minimized. Climatic conditions cause no worries. And extra wear alone more than pays for them.

If you want these advantages in your own plant, put Goodrich Rollers on your presses. Write today for full particulars.

•

The modern plant of The Boston Herald & Traveler—5 Scott Octuple presses with full Goodrich Roller equipment.

NILES & NELSON, Inc.

75 West Street, New York — *Exclusive Distributors* — 400 West Madison St., Chicago

Goodrich *Printers'* Rollers

Dry Mat Leadership

THE following is an excerpt taken from our advertisement in last year's May issue of the *I. S. & E. U. Journal* entitled "50,000,000 Wood Dry Mats":

> "The unequaled experience gained thru 16 years of dry mat production, qualifies us to meet the exacting demands of the newspaper world and to provide the best stereotype plates for newspaper printing. The fact that we are the largest manufacturers of dry mats indicates that our mats are meeting these demands and are continually giving the desired results."

Another year has passed and the above quotation bears the same truth today that it did when originally published. Time, however, necessitates one change — 16 evolves itself into 17 years of dry mat leadership —not only insofar as the number of customers is concerned, but also in the quantity of dry mats consumed.

WOOD

FLONG CORPORATION
HOOSICK FALLS, N.Y.

work. The length of exposure is one of the most important factors in the reverse process. Over-exposed plates will result in broken lines. Under-exposed plates will be scummy. The operator should bear in mind that the procedure is exactly the opposite of the albumin or negative printing. Over-exposing a negative by the albumin process will result in spreading and thickening, while over-exposure with this process will thin out the lines and will fill in on the gray part of the copy, which, when developed, will wash away altogether, causing broken lines and a gray printing plate.

The time of exposure depends entirely on the density of the material and density of the lines. Tracing paper and tracing cloth require but a very short exposure—one to three minutes; heavier paper correspondingly longer; glass positives very seldom more than one minute. After exposing the plate, wash it in running water.

DEVELOPING

The running water dissolves all the unexposed parts. After the plate is well washed and rinsed, it is dyed with anilin violet. The anilin dye solution should be mixed according to the following formula:

Anilin dye, 1 dram.
Alcohol, 1 ounce.
Water, gallon.

Dissolve the dye in alcohol, mix with water, filter through cotton into a bottle, and keep well corked. The anilin dye should be applied evenly to the plate; the plate should be rinsed in cool water. If the plate has been properly developed, the dye will adhere only to the back-ground of the plate, and not to the lines of the design. The plate should next be placed in luke warm water and washed thoroughly; this with a view to removing all the glue from the lines, and getting down to the bare metal of the plate.

DRYING

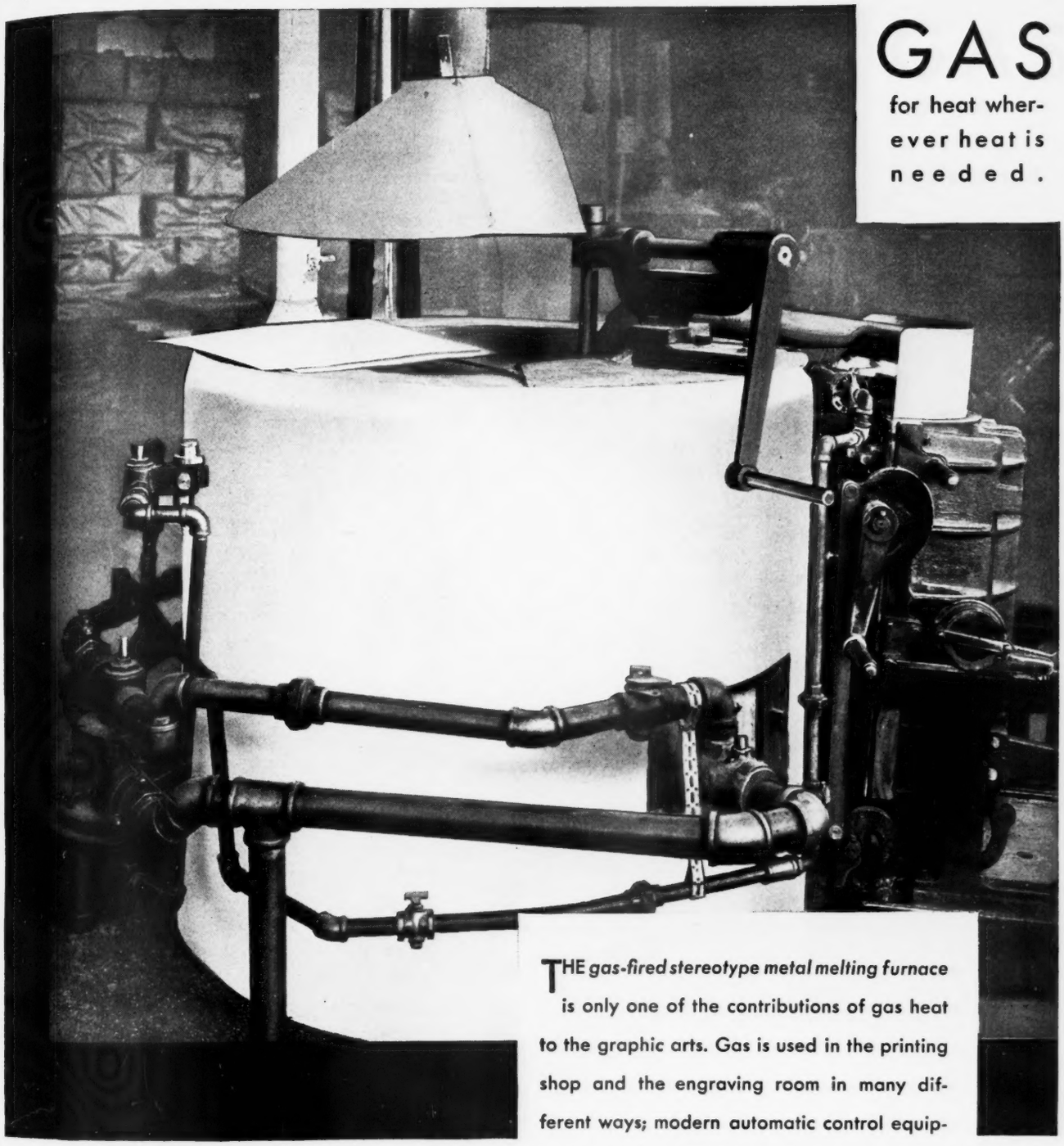
This seems a simple method of operation, yet many of the failures come from inattention in drying the plate. The trouble usually comes from the one fact that while the plate is drying, some of the glue which has been dissolved with the running water will dry on the washed-out portions of the plate. This will cause a film to form over the clean metal which, when inked up, will prevent the ink from touching the grain of the metal plate, for, in the subsequent washing, this under-lying film will again be dissolved and carry away with it the inked-up lines. Therefore, great care should be taken to dry the plate as quickly as possible. One way of drying is to place the plate in the whirler as soon as it is washed, and whirl it dry. Another way is to blot it first between clean sheets of blotting paper, and fan it dry.

GLYCERIN ETCH

After the plate is dry, the following operation is recommended: Mix 16 ounces of pure glycerin with one-half ounce of phosphoric acid; take a piece of flannel and make a brush out of it by nailing it to a flat piece of wood. Rub the plate over with this solution, and leave it on for two or three minutes. Then take a rubber squeegee and take off the glycerin solution; then wash the plate under running water, and dry it. The purpose of the glycerin etch is to remove all traces of dirt or foreign matter from the washed out portions of the metal, and to insure the holding of the ink.

Another way of doing this cleansing operation, is to counter-etch the plate with a weak solution of muriatic acid. This, however, is not so effective as the first mentioned or glycerin operation. The muriatic acid has a greater dissolving effect on the exposed glue; using it strong will weaken the glue, and may altogether remove it. The glycerin etch can be used without dissolving the glue background; it can be used in a more concentrated form, and its cleansing action will be more pronounced.

Continued on page 26



GAS

for heat wherever heat is needed.

THE *gas-fired stereotype metal melting furnace* is only one of the contributions of gas heat to the graphic arts. Gas is used in the printing shop and the engraving room in many different ways; modern automatic control equipment, together with this modern fuel, makes a combination indispensable to those who work with ink and paper. The magazine "Industrial Gas" is a veritable textbook on the myriad uses of gas for industrial purposes. Send for a free copy of it.

AMERICAN *Gas* ASSOCIATION

420 Lexington Avenue
New York

It is important that the glycerin solution be squeegeed off first with such a rubber as we have mentioned. Washing it off without removing the surplus glycerin will result in bleaching the anilin, and will also make clearing or "spotting" with the gum a difficult task.

SPOTTING OUT

All dirt or marks or creases in the copy, can be cleaned out now with the gum arabic solution. This is a very convenient way and corresponds with the "spotting" operation on the negative for the albumin process.

INKING

After the gum is dry, the plate is covered with an asphaltum solution. Lately products called "Dubar" and "Nowok" have been found very serviceable, but any so-called "base" will do, as long as the lines to which it has to adhere, are scrupulously clean. It is necessary that the "base" have good drying qualities.

After the base has been applied and is dry, the plate can be rolled up with a good quality of rolling-up or crayon ink. This is recommended solely because it enables the operator to see the work better on the metal plate, and make the necessary corrections. After inking with the roller, powder the plate with talcum powder, and it is now ready for the final operation or reversing.

REVERSING

Flow water over the plate and scrub it with a stiff brush. This will remove all ink from the protecting glue. It is then scrubbed further with a weak solution of muriatic acid. By scrubbing the plate with muriatic acid, all glue is dissolved and scrubbed away, leaving the ink only on those parts where it comes into direct contact with the plate, or the design itself. The scrubbing of the plate is one of the important features of this process, for if there is any trace of glue left on the plate, it will take up scum in the press. After the plate is well cleaned in this manner, it is dried and is ready for any corrections with tusche, crayon, etc. After all the corrections are made, the plate is etched in the usual manner, rolled up and cleaned, and is ready for the press.

While this process may seem more complicated than the albumin process in practical work, yet it is just as simple and speedy. The resulting plate from the glue process is a durable one, and is a well "founded" press plate, because a greasy substance is anchored right in the grain of the metal plate; while albumin, being water soluble, is always subject to the conditions existing in the pressroom.

July Printing Patents

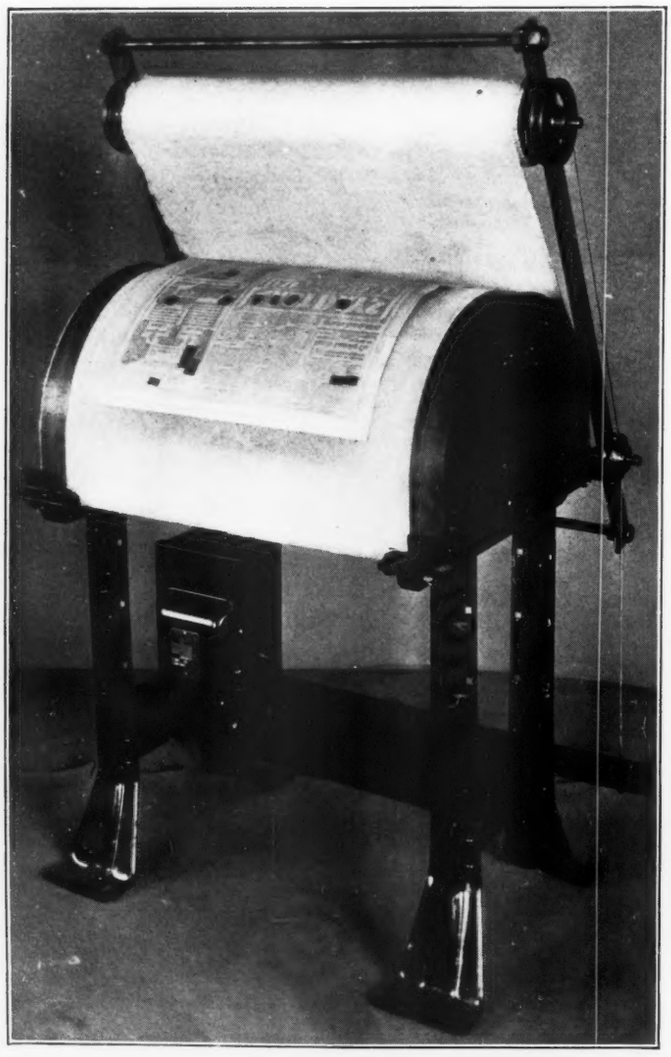
Printed Copies of Patents are furnished by the Patent Office at 10 cents each. These may be obtained by addressing the Commissioner of Patents, Washington, D. C.

1,864,799. TYPOGRAPHICAL MACHINE. HAROLD A. BURT, St. Albans, N. Y., assignor to Mergenthaler Linotype Company, a Corporation of New York. Filed Oct. 1, 1930. Serial No. 485,591. 17 Claims. (Cl. 199—20.)

1. In a typographical machine, the combination of a plurality of magazines, and a supporting frame therefor movably mounted in the machine frame, the magazines being shiftable relatively to the supporting frame to bring one or another thereof into operative position, with means for moving the supporting frame from its normal position to facilitate the removal of the magazines, together with means for preventing such movement of the supporting frame except when the magazines occupy a given shifted position therein.

1,865,035. PROCESS FOR THE MANUFACTURE OF PRINTER'S INK. LINCOLN CHARLES NEALE, Flemington, Australia. Filed Nov. 17, 1928, Serial No. 320,213, and in Australia Sept. 21, 1928. 2 Claims. (Cl. 134—36.)

1. A process of making printer's ink, which comprises comminuting waste vulcanized rubber, digesting the comminuted rubber in a hydrocarbon oil at a temperature sufficiently high to produce a liquid mass, incorporating into the liquid mass pigmenting



ACCLAIMED

by Stereotypers

and Business Managers

BECAUSE of the economical operation made possible by thermostatic heat control, keen business managers have forseen the benefits of the new turtle-back electric scorcher. Stereo Superintendents have realized the advantage of a uniform heat, a self-conforming cover and a padded drum. Both have been quick to respond and have taken advantage of the trial offer of

THIRTY DAYS' FREE TRIAL

Write for Details « » No Obligation

AMERICAN PUBLISHERS SUPPLY

P. O. BOX 131 WEST LYNN, MASS.

agents of the type of carbon black and a varnish of the "drying" class, and grinding the resulting mixture to insure a smooth consistency.

1,865,184. PRINTING MACHINE FOR MULTICOLOR WORK. Victor Enrique Givaudan, Mexico City, Mexico. Filed Jan. 23, 1929, Serial No. 334,524, and in Mexico Aug. 14, 1928. 2 Claims. (Cl. 101—176.)

1. In a rotatory printing machine for color work having a plurality of ink drums with different colors, a plurality of cylinders supported in operative contact, one of the cylinders having a circumference formed by printing blocks, and adjustable stationary means for successively placing the blocks during each revolution of the cylinder in contact with a plurality of the ink drums and subsequently with another one of the cylinders.

1,865,262. PHOTOCOMPOSING MACHINE. Alexander T. Koppe, Chicago, Ill., assignor to Directoplate Corporation, Chicago, Ill., a Corporation of Illinois. Filed June 6, 1927. Serial No. 196,948. 31 Claims. (Cl. 95—76.)

1. The combination in a photo-composing machine of a horizontal flat bed for supporting a sensitized plate of lesser area than the bed, a blanket on the bed beneath the plate, the blanket being of larger area than the plate, means for supporting a negative opposite the press plate, the negative supporting means being adapted to overlap the edges of the sensitized plate, and to contact with a projecting portion of the blanket, and vacuum pressure means for obtaining a close contact between the negative and the sensitized plate in all of the positions of the negative.

1,865,479. SAFETY DEVICE FOR PRINTING PRESSES AND THE LIKE. Emil L. Mueller, Rutherford, N. J. Filed Aug. 5, 1930. Serial No. 473,140. 16 Claims. (Cl. 192—127.)

2. The combination with a pair of rotatable rollers, means to drive the rollers, and a brake to stop rotation of the rollers, of a guard device for the rollers comprising a guard member standing adjacent the rollers, means by which the guard member is movably mounted, and means by which movement of the guard member will control the operation of the brake.

1,865,557. BOOKMAKING APPARATUS. Le Grand L. Clark, Brooklyn, N. Y., assignor to T. W. & C. B. Sheridan Company, New York, N. Y., a Corporation of New York. Filed June 9, 1927. Serial No. 197,616. 3 Claims. (Cl. 11—1.)

3. A machine of the class referred to comprising means for guiding a backlining web flatwise to a position for severance and application to a book, feed rolls between the guiding means and the severing point for advancingly feeding a backlining web from a supply and along the guiding means, a guide roll for the web arranged substantially tangent to the guiding means and delivering thereto, and means for delivering a headband strip to meet the backlining web at a point in line with the guiding means.

1,865,602. ROTARY PRINTING MACHINE. Ottmar Wilhelm, Augsburg, Germany, assignor to Maschinenfabrik Augsburg-Nurnberg A. G., Augsburg, Germany, a Corporation of Germany. Filed Mar. 8, 1929, Serial No. 345,833, and in Germany Mar. 15, 1928. 1 Claim. (Cl. 270—9.)

In a rotary web printing machine, the combination with the main printing mechanism inclusive of a frame and web printing, cutting and folding means carried thereby; of a supplemental printing mechanism complete in itself and independent of the main printing mechanism printing on a web separate from the web printed on by the main mechanism and disposed substantially within the limits of the frame of the main printing mechanism whereby the combined machine occupies no greater amount of floor space than the main printing mechanism alone, and means for assembling the products of the two independent printing mechanisms, the supplemental printing mechanism being disposed at right angles to the main printing mechanism and below the folding means of the main printing mechanism.

1,865,611. ROTARY PRINTING MACHINE. Rodolphe F. Bonsch, Paris, France. Filed Apr. 5, 1930. Serial No. 441,778. 6 Claims. (Cl. 101—233.)

1. In a rotary printing machine, a printing drum, a platen, paper feeding rolls, means for moving the platen into inactive non-impression-receiving position and means for moving the paper feeding rolls into non-feeding position upon printing movement of the drum without paper in the machine, stop fingers, and means to move the stop fingers into paper stopping position to prevent feeding of paper into the machine during the interval between the starting of printing movement of the drum and the positioning of the paper feeding rolls in non-feeding position.

1,865,665. WEB ROLL SUPPORTING DEVICE FOR TRIPLEX WEB PRESSES. Henry A. Wise Wood, New York, N. Y., assignor to Wood Newspaper Machinery Corporation, New York, N. Y., a Corporation of Virginia. Original application filed Aug. 4, 1923, Serial No. 655,776, renewed Apr. 4, 1929, and in Canada May 15, 1928, now Patent No. 1,757,157, dated May 6, 1930. Divided and this application filed Aug. 14, 1929. Serial No. 385,728. 1 Claim. (Cl. 242—58.)

The combination with a support for a web roll located in fixed position, a web roll thereon of a pair of rails located parallel to the axes thereof at one side thereof, a carriage mounted on the rails to move thereon toward and from the fixed web roll, a web roll support on the carriage adapted to receive a web roll from the floor and adapted to be moved on the track up toward the end of the first named web roll, the rails having stops for limiting the motion of the second web roll toward the first so that it will not touch it.

1,866,223. PRINTING FURNITURE. Herman Powers, Bayonne, N. J. Filed Oct. 11, 1930. Serial No. 487,970. 6 Claims. (Cl. 101—402.)

1. Furniture for printing, comprising a block formed of material impervious to the weather, there being continuous parallel grooves on the sides and edges of the block which extend from end to end and a plurality of apertures therethrough, and shoulders on the top, bottom and sides of the block adjacent the edges of the grooves.

1,866,379. CHASE FOR PRINTING PRESSES. Edward O. Vandercook, Robert O. Vandercook, Fred R. Vandercook, and David D. Vandercook, Chicago, Ill., assignors to Vandercook & Sons, Chicago, Ill., a Partnership. Filed May 26, 1927. Serial No. 194,267. 4 Claims. (Cl. 101—394.)

1. In a device of the character described the combination of a threaded adjusting element and an outwardly projecting spring controlled pin cooperating therewith for adjustably holding a member in a desired position.

1,866,445. LINE CASTING MACHINE. John W. Bittner, West Forest Hills, Long Island, N. Y., assignor to Intertype Corporation, Brooklyn, N. Y., a Corporation of New York. Filed June 30, 1931. Serial No. 547,994. 7 Claims. (Cl. 199—49.)

1. In a line casting machine comprising a slug casting mold, an elevator for presenting a line of matrices thereto, means for advancing the mold toward the matrix line to form a lock-up therewith, and means for lifting the elevator to align the matrices against the mold, means independent of the elevator lifting means for holding the elevator substantially in its lifted matrix aligning position.

1,866,566. GRIPPER MECHANISM. Albert J. Horton, White Plains, N. Y., assignor to R. Hoe & Co., Inc., New York, N. Y., a Corporation of New York. Filed May 28, 1930. Serial No. 456,485. 10 Claims. (Cl. 104—410.)

1. In a printing machine, a rotatable impression cylinder, a rotatable gripper carrier supported coaxial with the cylinder, a gripper mechanism on the carrier, and means to rotate the carrier oppositely to the rotation of the cylinder during a portion of the cylinder's revolution.

1,866,579. SHEET REGISTERING MECHANISM. Leonard F. Remington, Franklin, Mass., assignor to Thomson National Press Co., Inc., a Corporation of Delaware. Filed Mar. 3, 1930. Serial No. 432,875. 3 Claims. (Cl. 101—114.)

3. The combination with a platen press, the platen and its operating means, of gages for registering the leading edge of a sheet upon the platen, gage operating means carried by the platen and automatically actuatable during the closing movement, cooperating latching means on the gage operating means and the platen for locking the gages after they have been operated, release pawls supported on the press for unlocking the gages when the press opens and a spring for returning the gages to initial position.

1,866,910. OFFSET PROOF PRESS. Hugo F. Schmidt and Louis Jung, Milwaukee, Wis., assignors to Gugler Lithographic Company, a Corporation of Wisconsin. Filed Mar. 14, 1929. Serial No. 346,841. 39 Claims. (Cl. 101—251.)

(Continued on next page)

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We believe we have successfully demonstrated that Burgess Chrome Stereotype Mats more nearly approach the ideal than any other mat on the market.

They are uniform in moisture content, uniform in caliper, smooth face and back, firm texture assuring fine printing plates, exceptional facing giving easy release when casting, priced as low as quality and good practice will permit and backed by a guarantee of satisfaction by a responsible and ethical company.

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1. An offset proof press comprising a bed, a carriage reciprocable along the bed, a traveling transfer cylinder rotatably mounted on the carriage and adapted to have rolling contact with the bed, a pair of fixed racks associated with the bed, a drive shaft rotatably mounted on the carriage, a pair of carriage driving gears meshed with the racks, means for transmitting the driving force from the drive shaft to the driving gears only when the teeth of both exert uniform driving pressure on the teeth of their racks, cylinder driving gears, meshed with the racks and movable relative to the cylinder, and motion transmission means between the cylinder driving gears and the cylinder operable to transmit the driving force to the cylinder only when the teeth of both cylinder driving gears exert uniform driving pressure on the teeth of their respective racks.

1,866,976. ASSEMBLING ELEVATOR LIFTING MECHANISM FOR TYPOGRAPHICAL MACHINES. Irving John Keeler, Sidney, N. Y. Filed May 26, 1930. Serial No. 455,934. 12 Claims. (Cl. 199—31.)

1. In a linotype machine, the combination of an assembling elevator, a power driven clutch, rack and pinion mechanism operated by the clutch to raise the elevator, an air check for cushioning descent of the elevator, means for controlling the air check to maintain the elevator stationary at any desired point in its ascent, a spring pressed shipper for controlling the clutch, and a manually operated key for actuating the shipper.

1,867,805. PRINTER'S REGISTER HOOK. William F. Brugmann, Evanston, Ill. Filed July 14, 1928. Serial No. 292,856. 14 Claims. (Cl. 101—385.)

1. A printer's register hook embodying a body portion, a thrust member carried thereby, a member movable lengthwise of the body portion for engaging the thrust member to bodily separate the body portion and thrust member, the means for positively moving the member in both directions, the thrust member having a single point contact with the second recited member.

1,867,859. PRINTING PRESS. Samuel J. Mollett, Massillon, Ohio. Filed Feb. 28, 1929. Serial No. 343,523. 20 Claims. (Cl. 101—242.)

1. A printing press including a form cylinder and a compression cylinder, a feed table over which sheets may be advanced toward the cylinders, a stop device in front of the bight of the cylinders movable into and out of a position in the path of a sheet being moved toward the cylinders, grippers mounted for movement in a straight line through the bight of the cylinders, means for automatically actuating the grippers to grip a sheet positioned by the stop device and for simultaneously shifting the stop device to a position clear of the sheet, means for retaining the stop device in inoperative position, and independent means for returning the stop device to sheet-engaging position after the sheet engaged by the grippers has been moved to a position clear of the stop device.

1,867,860. PRINTING PRESS. Samuel J. Mollett, Massillon, Ohio, Original application filed Feb. 28, 1929, Serial No. 343,523. Divided and this application filed June 27, 1930. Serial No. 464,277. 8 Claims. (Cl. 101—247.)

1. A printing press comprising supporting standards, bearing members mounted for vertical movement in the standards, a form cylinder journaled in the bearing members, eccentrics supporting said bearing members, gears fixed with respect to the eccentrics, actuating levers having gear segments engaging the gears, springs acting on the levers and tending to move the same in a direction to lower the cylinder, and a latch for holding the levers in a position in which the cylinder is held in elevated position.

1,867,861. PRINTING CYLINDER. Samuel J. Mollett, Massillon, Ohio. Original application filed Feb. 28, 1929, Serial No. 343,523. Divided and this application filed June 27, 1930. Serial No. 464,157. 1 Claim. (Cl. 101—376.)

A form cylinder comprising spaced spiders and a peripheral portion formed of contiguous longitudinal wooden slats attached at their ends to the spiders, the slats being spaced apart at one portion of the periphery to provide a longitudinal gap, brackets carried by the spiders centrally of the gap, a shaft journaled in the brackets, the shaft having a squared portion between the brackets and an end projecting outwardly from one of the brackets adapted to receive a crank for turning the shaft, a form composed of a flexible composition body and a fabric backing, one end of which projects beyond the body and is adapted to be wound on the square portion of the shaft, the opposite end of the form being secured to the cylinder, and means for releasably locking the shaft against turning movement in a direction to unwind the fabric backing.

1,867,529. ROTARY PRESS AND THE LIKE. Francis Charles Edwin Jones, Hounslow, England. Filed Feb. 15, 1930, Serial No. 428,772, and in Great Britain Feb. 23, 1929. 2 Claims. (Cl. 101—248.)

1. Improvements relating to rotary presses applicable to printing and the like, comprising in combination a die roller, a counterpart roller, a driving gear pinion fast upon the spindle of the die roller, a driving gear pinion loose upon the spindle of the counterpart roller, a concentric slot in the last-named driving gear pinion, a pin in the counterpart roller, the slot being adapted to receive the pin and permit of floating movement of the counterpart roller when a sheet is in the press, a pulley mounted upon the counterpart roller spindle and a loaded belt passing over the pulley and adapted to restore the counterpart roller to its original position when the sheet has been removed.

1,867,038. SHEET SEPARATING DEVICE. Burt F. Upham, Boston, Mass., assignor to Miller Printing Machine Company, Pittsburgh, Pa., a Corporation of Pennsylvania. Filed No. 27, 1929. Serial No. 410,219. 2 Claims. (Cl. 271—26.)

1. A device for separating sheets singly from a pile thereof, comprising a sheet lifting member adapted to operate on the top sheet of the pile, means disposed in the path of the sheet being lifted by the member for engagement with the edge of such sheet, means for directing an air blast towards the pile both below and above the engagement means, and means for combing the top sheets of the pile toward the engagement means.

1,867,256. METHOD OF AND APPARATUS FOR DRYING SHEETS IN MULTICOLOR INTAGLIO PRINTING. Arnold Egli, Hamburg, Germany. Filed May 18, 1929, Serial No. 364,268, and in Germany May 19, 1928. Renewed Nov. 27, 1931. 14 Claims. (Cl. 101—416.)

1. In a multi-color sheet intaglio printing machine, in combination, an impression cylinder, printing cylinders, movable towards the impression cylinder and away from it, means adapted to convey different printing colors to the printing cylinders, boxes arranged around the impression cylinder and subdivided in the direction of the shaft of the impression cylinder, means for supplying the several boxes with compressed air, means for regulating the compressed air supply of the several boxes, the boxes constructed with discharge nozzles on the sides facing the impression cylinder, heating arrangements for heating the air discharge by the individual boxes, and means for changing the degree of heating of such air.

1,867,363. THREE-WAY CHASE LOCKUP. James Edgar Lee, Freeman Barney, and Philip J. Beatty, Grand Haven, Mich., assignors to Challenge Machinery Company, Grand Haven, Mich., a Corporation of Michigan. Filed May 30, 1930. Serial No. 457,578. 5 Claims. (Cl. 101—394.)

1. In combination, a printer's chase, a plurality of setups located in the chase, each having one side bearing against a side of the chase, manually operable locking means located between the set-ups at their other sides, means to simultaneously force the set-ups into secure holding engagement with the sides of the chase, and other manually operable locking means located against ends of the set-ups to bear thereagainst and to simultaneously force the opposite ends of the set-ups against and into secure holding engagement with a fixed part of the chase.

1,867,966. WEB FEED FOR TWO PLATE WIDE ROTARY PRINTING PRESSES. Edmund W. Dean, Battle Creek, Mich., assignor to Duplex Printing Press Company, Battle Creek, Mich., a Corporation of Michigan. Filed June 13, 1931. Serial No. 544,191. 3 Claims. (Cl. 270—5.)

1. In combination with a printing press having narrow two-page-wide printing mechanisms arranged with the transverse centers of their cylinders in the same plane; means for supporting a wide web roll parallel with the cylinders of the printing mechanisms with its transverse center in line with the transverse centers of the cylinders, means for centrally slitting the wide web, deflecting devices interposed between the roll and the printing mechanisms whereby the divided sections of the web are first deflected inwardly toward each other and then again deflected into exact parallelism with their center longitudinal lines in alignment with the transverse centers of the web roll and the cylinders, and means for directing the aligned sections to their respective printing mechanisms.

1,868,109. FOLDER FOR WEB PRINTING MACHINES. Frederick Lamatsch, Grantwood, N. J., assignor to R. Hoe & Co., Inc., New York, N. Y., a Corporation of New York. Filed Nov. 30, 1929. Serial No. 410,715. 7 Claims. (Cl. 270—42.)

1. In a double folder for a web printing machine, a first cutting and folding mechanism with a delivery, and second cutting and folding mechanism located beside the first mentioned mechanism and on a lower level, with a second delivery extending horizontally beneath the first delivery and separated therefrom.

1,868,117. WEB PASTING MECHANISM. George E. Pancoast, Sea Bright, N. J. Original application filed Jan. 22, 1924, Serial No. 687,757, now Patent No. 1,669,837, dated May 15, 1928. Divided and this application filed Apr. 12, 1928. Serial No. 269,490. 2 Claims. (Cl. 242—58.)

1. In a web feeding and pasting mechanism, the combination of a support for a running web roll and a spare web roll, a pair of pasting rolls below the web rolls arranged horizontally, between which a spare web may be led directly either over or under from a web roll in either position, guides over which the end of a spare web may be suspended and located above the pasting rolls, and means for moving one only of the pasting rolls toward the other to join the new web to a web running to the press.

1,868,125. CUTTING MECHANISM FOR PRINTING MACHINE FOLDERS. John R. Tomlin, Brooklyn, N. Y., assignor to R. Hoe & Co., Inc., New York, N. Y., a Corporation of New York. Filed July 10, 1931. Serial No. 549,874. 5 Claims. (Cl. 164—67.)

1. In a cutting mechanism for printing machine folders, the combination of a cutter block composed of a plurality of adjacent resilient elements, the two outer elements having inner recessed faces to provide clearances through which paper strips, dirt, and the like are forced by the cutting blade to clear the block.

1,868,310. WEB TENSION DEVICE. Allan J. Cline, Chicago, Ill. Filed Mar. 31, 1930. Serial No. 440,230. 12 Claims. (Cl. 242—75.)

1. A web tension device comprising, in combination with a roll support and a machine to which the web is to be supplied; brake mechanism for controlling the roll; means governed by the tension of the web for operating said brake mechanism; a counterweight for regulating said brake operating means; and a remote control device for adjusting the counterweight.

1,868,311. BED AND CYLINDER PRINTING PRESS. Calvert B. Cottrell, 3d, Westerly, R. I., assignor to C. B. Cottrell & Sons Company, Westerly, R. I., a Corporation of Delaware. Filed June 30, 1931. Serial No. 547,837. 18 Claims. (Cl. 101—357.)

1. In a bed and cylinder printing press, a reciprocating form bed, an inking mechanism therefor including form rollers driven continuously in one direction only, and means controlled by the bed for causing the form rollers to travel at the surface speed of the form when in contact therewith.

1,868,363. TYPE SLUG CASTING MACHINE OR THE LIKE. Robert M. O'Connor and Russell T. Todd, Warren, Ohio. Filed June 25, 1931. Serial No. 546,812. 8 Claims. (Cl. 199—52.)

1. A type slug casting machine comprising a reciprocating mold disk, an axially slidable driving pinion geared to said mold disk and releasable from its driving shaft when moved axially outwardly, selectable ejector means for delivering the slugs from the molds in said disk, a selector mechanism for determining the ejector to be used, said selector mechanism comprising a rotatable perforated disk normally retained stationary, a gear driving connection for manually rotating the disk when the axially slidable pinion is brought into mesh with the gear driving connection to simultaneously rotate the mold disk and perforated disk, the driving pinion and gear driving connection being so proportioned that the mold disk and perforated disk are moved through corresponding angular distances, pins selectively secured in the perforations in the disk, and a linkage connection between the perforated disk and the selectable ejector means for actuating and retaining the latter by the engagement of the pins with a portion of the linkage mechanism.

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Correction Regarding "Redesigned Pot for Monotypes

In the July ENGINEER there appeared a story, "Redesigned Pot for Monotypes," in which the impression is created that certain alterations could be made in the Monotype gas pot "as designed at present."

We are in receipt of information from the Lanston Monotype Machine Company which informs us that the metal pot referred to in the article is an obsolete model. The metal pot installed on Monotype casting machines shipped during the past six years cannot be remodeled as designed in the article.

The ENGINEER is glad to make the correction as noted above.

Frank Pettit Is Dead

The many friends of Frank Pettit, well-known line-casting machine engineer, will regret to learn of his death which occurred in St. Paul, Minnesota, July 21.

Mr. Pettit's home was in Kansas City, Missouri, where he is survived by a wife and two children. His death came suddenly while he was on a visit to St. Paul.

He had been connected with Intertype Corporation for 20 years. His headquarters were at the Chicago office. He had just recently returned there, having spent about a year in the New York office where he is given chief credit for the development of the new Model F Mixer.

Latest Printing Equipment Mechanisms

New Line of G-E Direct Current Motors

A new line of direct current motors, embodying refinements of design and construction that are a distinct contribution to the general-purpose d-c motor field, has been developed by the General Electric Company. Mechanically, these motors are so designed that many variations, such as different degrees of enclosure for various applications, can be accomplished by using only a few different parts. New and radically different pulley-end shields afford maximum protection to the motor windings. Drop-forged feet welded to the motor frame reduce the possibility of breakage. The improved insulation used is resistant to moisture and weak acids. Properly proportioned stabilizing windings make possible unusually stable operation. In addition, the speeds of all constant-speed motors can be increased 25 per cent, and more in some ratings, by field control.

Any of the Type D motors are applicable to paper cutters, small job presses, flat-bed presses, lithograph machines and auxiliary drives for feeders and blowers. A complete line of controls for these motors is also furnished by the General Electric Company.

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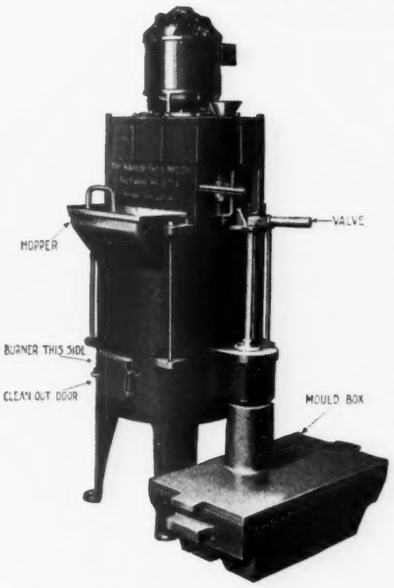

It occupies but two and one-half feet of space and is placed preferably near the larger stereotype pots from which the dross is skimmed. The dross can be immediately thrown into the Renovator, thus eliminating storage of same in cans and the packing for shipment to the smelter.

The Monarch Metal Renovator will reclaim from 65 to 75% new metal from your dross, thereby effecting a substantial saving and maintaining the quality of your metal.

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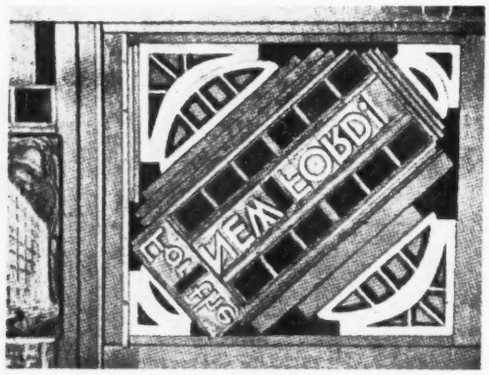
Padgett Any-Angle Furniture

During the last few years advertising layout men have demanded lines or blocks of type and cuts justified diagonally to the balance of the form in printed matter. This has been the cause of considerable trouble to the printer in the way of



wasted time, pied forms, work-ups and pull-outs on the press—all of which have increased production costs.

C. R. Padgett, a practical printer of the Padgett Any-Angle Furniture Co., has designed and is now selling a new type of lock-up furniture which is called the Padgett Any-Angle Furniture.

As is shown in the illustration, the device consists of eight pieces (two pieces for each corner). One of the corner pieces squares with the chase or regular furniture in the form, and the other piece may be rotated to bring its straight edge parallel to the type or cut which it is to support. The circular joint between the two pieces permits rotating the angle piece through a sector of a circle to hold the type matter diagonally in the desired position.

The furniture is made in two sizes, 10-em and 5-em. The larger size is designed for lock-up purposes, and the smaller 5-em size is intended for use where type is to be set at an angle within a mortise or surrounding body type.

It is also claimed by Mr. Padgett that the use of Any-Angle Furniture makes color register as simple a matter as securing exact position with one-color printing. The angle can be repeated accurately for each color.

Full particulars may be obtained by addressing the Padgett Any-Angle Furniture Co., in care of PRINTING EQUIPMENT ENGINEER.

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Supplement for Catalog—Illustrated, showing many parts for linotypes and intertypes, 5¼ in. by 7¾ in., 20 pages.

You Can Now Fill Your Plant with Profitable Job Press Work—Folder illustrating and describing a cylinder press of small size which is designed to do work usually executed on platen presses at an operating speed of 3500 impressions per hour.

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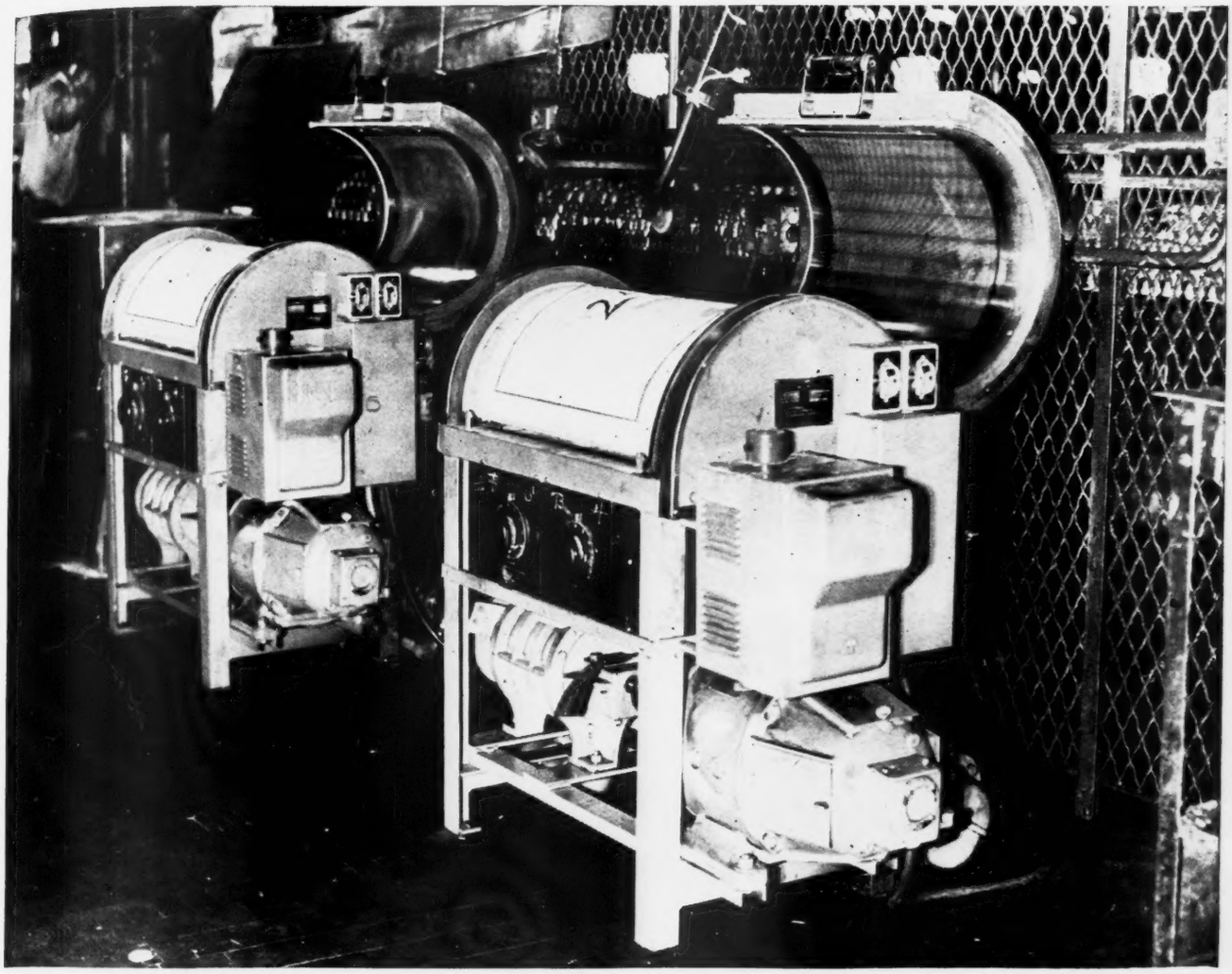

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